

Table 3.1-1. Portland Harbor Vertical Datum Conversion Table.

River Mile	NAVD88 Elevation	NGVD29/47 Elevation	CRD Elevation
0.4	10.0'	6.8'	5.4'
	0.0'	-3.2'	-4.6'
	-10.0'	-13.2'	-14.6'
1.3	10.0'	6.8'	5.4'
	0.0'	-3.2'	-4.7'
	-10.0'	-13.2'	-14.7'
5	10.0'	6.7'	4.9'
	0.0'	-3.3'	-5.1'
	-10.0'	-13.3'	-15.1'
9.8	10.0'	6.5'	4.7'
	0.0'	-3.5'	-5.3'
	-10.0'	-13.5'	-15.3'
12.8	10.0'	6.5'	4.6'
	0.0'	-3.5'	-5.4'
	-10.0'	-13.5'	-15.4'
15.6	10.0'	6.5'	4.6'
	0.0'	-3.5'	-5.4'
	-10.0'	-13.5'	-15.4'

**Notes:**

CRD - Columbia River datum

NAVD88 - North American Vertical Datum of 1988

NGVD29/47 - National Geodetic Vertical Datum of 1929 through the Pacific Northwest  
Supplemental Adjustment of 1947

Table 3.1-2. Summary of ADCP Transect Time, Location, and Approximate Total Flow.<sup>a</sup>

Transect	ADCP File	River Mile	Time (UTC)	Water Level CRD (Morrison Street Gauge)	Flow (ft <sup>3</sup> /s)	Location Description
1	A109018R.000	1	1:13	10.87	35405	Columbia Slough
2	A109017R.000	2	1:05	10.9	34727	
3	A109016R.000	2.5	0:48	10.92	34886	
4	A109000R.000	3.1	18:50	11.47	69170	Multnomah Channel
5	A109015R.000	4	0:42	10.92	67098	
6	A109001R.000	4.6	19:23	11.41	70928	Into Terminal 4 Slip 3
7	A109012R.000	5.8	23:57	10.99	66452	St. Johns Bridge
8	A109010R.000	6.3	23:37	11.05	71113	Off Gasco
9	A109002R.000	6.8	20:11	11.18	71356	Into Willamette Cove
10	A109009R.000	7.8	23:00	11.1	67447	Off Willbridge Terminal
11	A109005R.000	8	21:14	11.27	68181	Downstream of PSY
12	A109003R.000	8	~20:45	11.31	-479	Swan Island Lagoon (mouth)
13	A109004R.000	8	21:00	11.29	183	Swan Island Lagoon (upper end)
14	A109008R.000	9.6	22:34	11.16	65452	Across deep hole in channel
15	A109007R.000	10	22:22	11.18	67643	
16	A109006R.000	11	22:04	11.19	69461	

**Notes:**

<sup>a</sup> The ADCP survey was conducted by David Evans & Associates, Inc. during a high water event on April 19, 2002 (DEA 2002b).

ADCP - acoustic doppler current profiler

CRD - Columbia River datum

UTC - Coordinated Universal Time

Table 3.1-3. Summary of Discharge Measurements Calculations in the May 2003 and January 2004 ADCP Surveys near Multnomah Channel.

*May 2003 Survey - 6 passes over tidal cycle*

Transect Location	Transect Number	Pass Number	Discharge (Q) (ft <sup>3</sup> /sec)	Multnomah Channel (Q) Calculated Transect 5 - Transect 3 (ft <sup>3</sup> /sec)	Multnomah Channel (Q) Measured (ft <sup>3</sup> /sec)
RM 2.5 - downstream of MC	3	1	18923		
RM 3.1 - entrance of MC	4	1	33542		
RM 4.0 - upstream of MC	5	1	32581		
Within MC		1		13658	18693
RM 2.5 - downstream of MC	3	2	17882		
RM 3.1 - entrance of MC	4	2	36525		
RM 4.0 - upstream of MC	5	2	35737		
Within MC		2		17855	18542
RM 2.5 - downstream of MC	3	3	17662		
RM 3.1 - entrance of MC	4	3	35058		
RM 4.0 - upstream of MC	5	3	35005		
Within MC		3		17343	18194
RM 2.5 - downstream of MC	3	4	8839		
RM 3.1 - entrance of MC	4	4	21442		
RM 4.0 - upstream of MC	5	4	18358		
Within MC		4		9519	18535
RM 2.5 - downstream of MC	3	5	17995		
RM 3.1 - entrance of MC	4	5	-496		
RM 4.0 - upstream of MC	5	5	3706		
Within MC		5		-14289	15190
RM 2.5 - downstream of MC	3	6	10001		
RM 3.1 - entrance of MC	4	6	34004		
RM 4.0 - upstream of MC	5	6	36369		
Within MC		6		26368	18789

*January 2004 Survey-2 passes, number one on rising tide and number two on falling tide*

Transect Location	Transect Number	Pass Number	Discharge (Q) (ft <sup>3</sup> /sec)	Multnomah Channel (Q) Calculated Transect 5 - Transect 3 (ft <sup>3</sup> /sec)	Multnomah Channel (Q) Measured (ft <sup>3</sup> /sec)
RM 2.5 - downstream of MC	3	1	97739		
RM 3.1 - entrance of MC	4	1	126700		
RM 4.0 - upstream of MC	5	1	125474		
Within MC	17	1		27735	31242
RM 2.5 - downstream of MC	3	2	99838		
RM 3.1 - entrance of MC	4	2	130580		
RM 4.0 - upstream of MC	5	2	130738		
Within MC	17	2		30900	31720

**Notes:**

ADCP - acoustic doppler current profiler  
MC - Multnomah Channel

Table 3.1-4. 2002-2009 Bathymetric Change as Percent Area by River Mile Segment.

River Mile																	
Bathymetric Change (ft)		0-1	1-2	Multnomah Channel below RM 3	2-3	Multnomah Channel above RM 3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	RM 11 to End of Nav. Channel	End of Nav. Channel to RM 11.8	Mean % Change
East Side Channel																	
Shoaling	>5	0	0	NA	0	NA	0	1	0	2	2	0	0	0	0	0	0
	2 to 5	1	23	NA	17	NA	2	3	1	6	7	3	0	4	2	1	5
	1 to 2	6	29	NA	49	NA	10	15	4	3	21	6	2	6	4	1	12
	.25 to 1	29	24	NA	23	NA	38	37	16	14	43	33	3	10	13	3	22
	0 to .25	23	5	NA	4	NA	12	6	11	19	10	23	8	5	9	13	11
Deepening	-.25 to 0	16	5	NA	3	NA	9	5	17	24	9	15	21	6	15	22	13
	-1 to -.25	15	9	NA	3	NA	15	13	33	24	7	14	37	20	29	52	21
	-2 to -1	6	3	NA	0	NA	6	10	13	6	1	4	19	18	15	6	8
	-5 to -2	4	1	NA	0	NA	6	8	5	2	0	1	8	28	11	2	6
	<-5	0	0	NA	0	NA	3	2	0	0	0	0	1	2	3	0	1
Cum. No Change (+/- 0.25')		39	10	NA	7	NA	21	11	28	43	19	39	29	11	24	35	24
Navigational Channel																	
Shoaling	> 5	0	0	NA	0	NA	0	0	1	0	0	0	16	5	0	NA	2
	2 to 5	0	13	NA	26	NA	0	8	2	2	2	24	34	9	3	NA	10
	1 to 2	2	9	NA	32	NA	9	22	4	3	26	29	14	8	14	NA	14
	.25 to 1	6	25	NA	25	NA	59	46	23	15	40	23	11	20	17	NA	26
	0 to .25	9	20	NA	6	NA	23	13	23	24	16	9	5	12	11	NA	14
Deepening	-.25 to 0	24	22	NA	6	NA	7	5	23	28	10	7	7	19	25	NA	15
	-1 to -.25	52	11	NA	5	NA	2	4	21	24	6	6	11	25	26	NA	16
	-2 to -1	7	1	NA	0	NA	0	2	3	3	1	1	2	1	2	NA	2
	-5 to -2	1	0	NA	0	NA	0	1	0	0	0	0	0	0	0	NA	0
	<-5	0	0	NA	0	NA	0	0	0	0	0	0	0	0	0	NA	0
Cum. No Change (+/- 0.25')		32	42	NA	12	NA	31	18	46	52	26	16	12	31	37	NA	30
West Side Channel																	
Shoaling	>5	0	0	0	0	0	0	1	0	0	1	0	10	0	0	0	1
	2 to 5	0	0	0	1	0	0	22	3	3	5	7	14	18	2	1	5
	1 to 2	0	0	1	4	1	7	29	19	13	11	20	17	42	19	4	13
	.25 to 1	1	5	20	22	7	33	22	41	27	18	21	25	25	21	14	20
	0 to .25	1	24	17	20	11	17	7	14	14	9	8	10	5	15	19	13
Deepening	-.25 to 0	6	29	15	26	28	21	5	9	14	10	8	9	3	13	34	15
	-1 to -.25	42	34	35	23	50	19	7	10	20	25	21	13	6	21	20	23
	-2 to -1	41	5	12	4	3	1	4	3	5	12	13	3	1	5	5	8
	-5 to -2	8	2	0	1	0	0	2	1	2	8	2	0	0	2	1	2
	<-5	1	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0
Cum. No Change (+/- 0.25')		7	54	32	46	39	38	12	23	28	19	15	19	8	28	53	28

Notes:  
NA - not applicable

Table 3.1-5. Summary of Shear Stress and Associated Erosion Rates for Portland Harbor Sediments.

<b>Shear Stress (N/m<sup>2</sup>)</b>	<b>Measurements Count</b>	<b>Erosion Rate (cm/s)</b>	
		<b>Min</b>	<b>Max</b>
0.1	16	0	0.0003
0.2	23	0	0.0003
0.4	55	0	0.001
0.8	74	0	0.04
1.6	76	0.0002	0.1
3.2	76	0.0003	0.3
6.4	60	0.007	0.4
10	2	0.02	0.04

Table 3.1-6. Summary of Grain Size and Critical Shear Stress for Sedflume Cores by Core Depth Interval at Portland Harbor.

Sample Depth by Category	d50 (μm)		T <sub>cr</sub> (N/m <sup>2</sup> )	
	Min	Max	Min	Max
0–5 cm	9.7	401	0.06	0.64
5–10 cm	12	367	0.32	1.28
10–15 cm	10	378	0.22	1.28
15–20 cm	7.8	384	0.26	1.28
20–25 cm	10.9	357	0.24	1.28

Table 3.1-7. LWG TSS Peristaltic Sampling Events and Station Summary.

		Sampling Method			Sampling Event							
River Mile	Location Description / Nearest Property	Round 2	Round 3	R2A	R2	R2A	Nov 2005 - April 2006	R3A	R3A	R3A Nov 2006	R3A Jan 2007	
				Nov 2004 Low Flow	Mar 2005 Low Flow	Jul 2005 Low Flow	Hydrodynamic Model Sampling	Jan 2006 High Flow <sup>a</sup>	Sep 2006 Low Flow	Stormwater-Influenced	Jan 2007 High Flow <sup>b</sup>	
Transect Stations												
Round 2 and Round 3												
W005	3.9	Kinder-Morgan (Linnton) Liquid Terminals	EDI	NB/NS	√	√	√	--	√	√	√	
W011	6.3	Near middle of Study Area (at Gasco)	EDI	NB/NS	√	√	√	--	--	√	√	
W023	11	Upstream boundary of Study Area	EDI	VI (E,M,W)	√	√	√	--	√	√	√	
Hydrodynamic Model Data Collection												
HMW05	23	Upstream of Study Area	HI, VI					√				
	23.7	Upstream of Study Area	HI, VI					√				
Round 3												
W025	2	Downstream extent of Study Area (at Oregon Steel Mills)	--	VI (E,M,W)	--	--	--	--	--	√	√	
W027	2.9, Mult. Channel	Downstream of Study Area (Multnomah Channel at Alder Creek Lumber)	--	NB/NS	--	--	--	--	--	√	√	
W024	16	Upstream of Study Area and City of Portland	--	NB/NS	--	--	--	--	√	√	√	
Single-Point Stations												
Round 2												
W001	2	Oregon Steel Mills	NB	--	√	√	√	--	--	--	--	
W002	2.2	Near Western Shore Sauvie Island	NB	--	√	√	√	--	--	--	--	

Table 3.1-7. LWG TSS Peristaltic Sampling Events and Station Summary.

		Sampling Method			Sampling Event							
		Location Description / Nearest Property	Round 2	Round 3	R2A Nov 2004 Low Flow	R2 Mar 2005 Low Flow	R2A Jul 2005 Low Flow	Nov 2005 - April 2006 Hydrodynamic Model Sampling	R3A Jan 2006 High Flow <sup>a</sup>	R3A Sep 2006 Low Flow	R3A Nov 2006 Stormwater- Influenced	R3A Jan 2007 High Flow <sup>b</sup>
River Mile												
W003	3	PGE- Harborton Subst.	NB	--	√	√	√	--	--	--	--	--
W004	3.7	NW Pipe Co.	NB	--	√	√	√	--	--	--	--	--
W006	4	Kinder Morgan	NB	--	√	√	√	--	--	--	--	--
W007	4.4	Port of Portland, Terminal 4,	NB	--	√	√	√	--	--	--	--	--
W008	4.6	Slip 1 Port of Portland, Terminal 4,	NB	--	√	√	√	--	--	--	--	--
W009	5.6	Slip 3 Brix Maritime	NB	--	√	√	√	--	--	--	--	--
W010	5.7	Former Mar Com Shipyard	VI	--	√	√	√	--	--	--	--	--
W012	6.3	Gasco	NB	--	√	√	√	--	--	--	--	--
W013	6.9	Willamette Cove	NB	--	√	√	√	--	--	--	--	--
W014	6.9	Willamette Cove	VI	--	√	√	√	--	--	--	--	--
W015	6.9	Arkema (downstream)	NB	--	√	√	√	--	--	--	--	--
W016	7.2	Arkema (upstream)	NB	--	√	√	√	--	--	--	--	--
W017	7.5	Arkema/ Kinder Morgan boundary	NB	--	√	√	√	--	--	--	--	--
W018	8.3	Swan Island Lagoon (near USCG Marine Safety)	NB	--	√	√	√	--	--	--	--	--
W019	8.6	Texaco/ Gunderson	NB	--	√	√	√	--	--	--	--	--
W020	9.1	Swan Island Lagoon	VI	--	√	√	√	--	--	--	--	--
W021	8.7	Swan Island Lagoon (southern end)	NB	--	√	√	√	--	--	--	--	--
W022	9.7	Port of Portland Terminal 2	NB	--	√	√	√	--	--	--	--	--



Table 3.1-7. LWG TSS Peristaltic Sampling Events and Station Summary.

		Sampling Method			Sampling Event							
River Mile	Location Description / Nearest Property	Round 2	Round 3	Nov 2005 - April 2006								
				R2A Nov 2004 Low Flow	R2 Mar 2005 Low Flow	R2A Jul 2005 Low Flow	Hydrodynamic Model Sampling	R3A Jan 2006 High Flow <sup>a</sup>	R3A Sep 2006 Low Flow	R3A Nov 2006 Stormwater-Influenced	R3A Jan 2007 High Flow <sup>b</sup>	
Round 3												
W026	2.1	Oregon Steel Mills	--	NB/NS	--	--	--		--	--	√	√
W028	3.6	Time Oil Site	--	NB/NS	--	--	--		--	--	√	√
W029	4.4	Kinder Morgan Former	--	NB/NS	--	--	--		--	--	√	√
W030	5.5	Mar Com Shipyard	--	NB/NS	--	--	--		--	--	√	√
W031	6.1	Gasco	--	NB/NS	--	--	--		--	--	√	√
W032	6.9	Willamette Cove	--	NB/NS	--	--	--		--	--	√	√
W033	7	Arkema (downstream)	--	NB/NS	--	--	--		--	--	√	√
W034	7.5	Arkema (upstream)	--	NB/NS	--	--	--		--	--	√	√
W035	8.5	Swan Island Lagoon	--	NB/NS	--	--	--		--	--	√	√
W036	8.6	Texaco/Gunderson Port of	--	NB/NS	--	--	--		--	--	√	√
W037	9.6	Portland-Terminal 2	--	NB/NS	--	--	--		--	--	√	√
W038	9.9	Near east shore, RM 9.9	--	NB/NS	--	--	--		--	--	√	√

Notes:

- <sup>a</sup> Only near-surface samples were collected in the January 2006 high-flow event.
- <sup>b</sup> The January/February 2007 high-flow event was cancelled after two days of sampling due to an unexpected change in flow conditions. Sampling resumed on February 21, 2008.

-- Indicates samples not collected.  
EDI - equal discharge increment transect sample  
HI - horizontally integrated  
NB/NS - near bottom/near surface sample pair

NB - near bottom sample  
TSS - total suspended solids  
VI (E,M,W) - vertically integrated sample: east - middle - west

Table 3.1-8. LWG Member Independent Surface Water Sampling Event and Station Summary.

Location ID	River Mile	Location Description / Nearest Property	Sampling Method	Sampling Dates <sup>a</sup>
Transect Stations				
City of Portland Long Term Monitoring				
D	1.1	South Kelly Point Park	Composite of three grab samples collected from eastern, middle, and western locations across river, at depth of 10 ft from surface (peristaltic).	Dec 1, 1993 - April 3, 2008
C	6.8	St. John's Railroad Bridge		Nov 17, 1993 - April 3, 2008
E	8.8	Swan Island		Nov 17, 1993 - Jan 13 1999
B	12.7	Morrison Street Bridge		Nov 17, 1993 - April 3, 2008
F	17.9	Waverly Country Club		Feb 1, 1995 - April 3, 2008
A	20	Tryon Creek Bridge		Nov 17, 1993 - Jun 28, 2000
Single-Point Stations				
City of Portland Long Term Monitoring				
D	1.1	South Kelly Point Park	Grab samples from location mid-point across river, at depths of 0, 10, and >10 ft	Feb 5, 1992 - Oct 20, 1993
C	6.8	St. John's Railroad Bridge		
B	12.7	Morrison Street Bridge		
A	20	Tryon Creek Bridge		
NW Natural				
GSW-01	5.9	NW Natural Gas Co.	Grab samples collected from depths of 2 ft, mid-depth, and near-bottom at slack high tide, ebb tide, and slack low tide	Oct 1-9, 2007
GSW-02	6			
GSW-03				
GSW-04				
GSW-05	6.1			
GSW-06				
GSW-07				
GSW-08				
GSW-09	6.2			
GSW-10				
GSW-11				
GSW-12	6.3			
GSW-13				
GSW-14				
GSW-15	6.4	Siltronic Corp.		
GSW-16				
GSW-17				
GSW-18				6.5
GSW-19				
GSW-20				

**Notes:**

<sup>a</sup> Only data collected after October 1, 2000 were included in the analysis in this section.

Table 3.1-9. TSS Data and Associated Discharge and Precipitation Values.

Sample Date	Reach	Data Set	Location Name	River Mile	TSS (mg/L)	Q (cfs)	Precipitation on Day of Sampling	Precipitation on Day Prior to Sampling	Precipitation-influenced TSS? <sup>a</sup>	Upriver or Study Area
10/4/2000	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	17	13000 Ae	0.00	0.00	No	Study Area
10/4/2000	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	6.2	13000 Ae	0.00	0.00	No	Study Area
10/4/2000	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	3.6	13000 Ae	0.00	0.00	No	Upriver
10/4/2000	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	2.6	13000 Ae	0.00	0.00	No	Upriver
10/18/2000	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	14	14000 Ae	0.01	0.15	No	Study Area
10/18/2000	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	4.8	14000 Ae	0.01	0.15	No	Study Area
10/18/2000	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	6	14000 Ae	0.01	0.15	No	Upriver
10/18/2000	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	3.4	14000 Ae	0.01	0.15	No	Upriver
11/1/2000	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	5.1	17000 Ae	0.04	0.02	No	Study Area
11/1/2000	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	5.3	17000 Ae	0.04	0.02	No	Study Area
11/1/2000	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	6	17000 Ae	0.04	0.02	No	Upriver
11/1/2000	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	3.7	17000 Ae	0.04	0.02	No	Upriver
11/29/2000	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	2.6	21000 Ae	0.42	0.00	Yes	Upriver
11/29/2000	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	2.6	21000 Ae	0.42	0.00	Yes	Upriver
12/6/2000	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	5	17000 Ae	0.00	0.00	No	Study Area
12/6/2000	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	4.2	17000 Ae	0.00	0.00	No	Study Area
12/6/2000	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	3.5	17000 Ae	0.00	0.00	No	Upriver
12/6/2000	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	4	17000 Ae	0.00	0.00	No	Upriver
1/3/2001	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	5	19000 Ae	0.11	0.00	No	Study Area
1/3/2001	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	4	19000 Ae	0.11	0.00	No	Study Area
1/3/2001	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	4	19000 Ae	0.11	0.00	No	Upriver
1/3/2001	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	4	19000 Ae	0.11	0.00	No	Upriver
1/17/2001	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	5.2	17000 Ae	0.00	0.00	No	Study Area
1/17/2001	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	4.4	17000 Ae	0.00	0.00	No	Study Area
1/17/2001	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	2	17000 Ae	0.00	0.00	No	Upriver
1/17/2001	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	3	17000 Ae	0.00	0.00	No	Upriver
2/7/2001	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	4	24000 Ae	0.00	0.01	No	Study Area
2/7/2001	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	6	24000 Ae	0.00	0.01	No	Study Area
2/7/2001	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	4.8	24000 Ae	0.00	0.01	No	Upriver
2/7/2001	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	4	24000 Ae	0.00	0.01	No	Upriver
2/21/2001	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	4	14000 Ae	0.24	0.00	Yes	Study Area
2/21/2001	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	3.2	14000 Ae	0.24	0.00	Yes	Study Area
2/21/2001	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	3	14000 Ae	0.24	0.00	Yes	Upriver
2/21/2001	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	2.8	14000 Ae	0.24	0.00	Yes	Upriver
3/7/2001	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	5.5	14000 Ae	0.00	0.00	No	Study Area
3/7/2001	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	5	14000 Ae	0.00	0.00	No	Study Area
3/7/2001	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	4.2	14000 Ae	0.00	0.00	No	Upriver
3/7/2001	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	4	14000 Ae	0.00	0.00	No	Upriver
3/21/2001	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	6.4	26000 Ae	0.00	0.00	No	Study Area
3/21/2001	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	6.8	26000 Ae	0.00	0.00	No	Study Area
3/21/2001	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	7.2	26000 Ae	0.00	0.00	No	Upriver
3/21/2001	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	5.6	26000 Ae	0.00	0.00	No	Upriver
4/4/2001	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	8.6	26000 Ae	0.00	0.00	No	Study Area
4/4/2001	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	6	26000 Ae	0.00	0.00	No	Study Area
4/4/2001	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	5.6	26000 Ae	0.00	0.00	No	Upriver

Table 3.1-9. TSS Data and Associated Discharge and Precipitation Values.

Sample Date	Reach	Data Set	Location Name	River Mile	TSS (mg/L)	Q (cfs)	Precipitation on Day of Sampling	Precipitation on Day Prior to Sampling	Precipitation-influenced TSS? <sup>a</sup>	Upriver or Study Area
4/4/2001	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	6	26000 Ae	0.00	0.00	No	Upriver
4/18/2001	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	5.5	24000 Ae	0.00	0.00	No	Study Area
4/18/2001	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	6.2	24000 Ae	0.00	0.00	No	Study Area
4/18/2001	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	5.2	24000 Ae	0.00	0.00	No	Upriver
4/18/2001	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	4	24000 Ae	0.00	0.00	No	Upriver
5/2/2001	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	5.2	32000 Ae	0.00	0.10	No	Study Area
5/2/2001	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	5	32000 Ae	0.00	0.10	No	Study Area
5/2/2001	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	6.6	32000 Ae	0.00	0.10	No	Upriver
5/2/2001	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	6.8	32000 Ae	0.00	0.10	No	Upriver
5/16/2001	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	3.2	30000 Ae	0.02	0.20	Yes	Study Area
5/16/2001	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	4.3	30000 Ae	0.02	0.20	Yes	Study Area
5/16/2001	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	4.2	30000 Ae	0.02	0.20	Yes	Upriver
5/16/2001	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	5.2	30000 Ae	0.02	0.20	Yes	Upriver
6/6/2001	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	6.4	17000 Ae	0.00	0.21	Yes	Study Area
6/6/2001	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	5	17000 Ae	0.00	0.21	Yes	Study Area
6/6/2001	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	6	17000 Ae	0.00	0.21	Yes	Upriver
6/6/2001	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	3	17000 Ae	0.00	0.21	Yes	Upriver
6/20/2001	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	8	9900 Ae	0.00	0.00	No	Study Area
6/20/2001	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	6.5	9900 Ae	0.00	0.00	No	Study Area
6/20/2001	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	7.6	9900 Ae	0.00	0.00	No	Upriver
6/20/2001	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	4.8	9900 Ae	0.00	0.00	No	Upriver
7/11/2001	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	7.8	7500 Ae	0.00	0.00	No	Study Area
7/11/2001	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	7.5	7500 Ae	0.00	0.00	No	Study Area
7/11/2001	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	6	7500 Ae	0.00	0.00	No	Upriver
7/11/2001	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	3.2	7500 Ae	0.00	0.00	No	Upriver
7/25/2001	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	10	7000 Ae	0.00	0.00	No	Study Area
7/25/2001	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	7.5	7000 Ae	0.00	0.00	No	Study Area
7/25/2001	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	6.4	7000 Ae	0.00	0.00	No	Upriver
7/25/2001	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	3.5	7000 Ae	0.00	0.00	No	Upriver
8/8/2001	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	8	7000 Ae	0.00	0.00	No	Study Area
8/8/2001	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	6	7000 Ae	0.00	0.00	No	Study Area
8/8/2001	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	6.4	7000 Ae	0.00	0.00	No	Upriver
8/8/2001	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	1	7000 Ae	0.00	0.00	No	Upriver
8/22/2001	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	7.2	7000 Ae	0.64	0.04	Yes	Study Area
8/22/2001	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	11	7000 Ae	0.64	0.04	Yes	Study Area
8/22/2001	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	6.4	7000 Ae	0.64	0.04	Yes	Upriver
8/22/2001	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	4	7000 Ae	0.64	0.04	Yes	Upriver
9/12/2001	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	8.8	7100 Ae	0.00	0.00	No	Study Area
9/12/2001	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	6.4	7100 Ae	0.00	0.00	No	Study Area
9/12/2001	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	5.6	7100 Ae	0.00	0.00	No	Upriver
9/12/2001	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	4	7100 Ae	0.00	0.00	No	Upriver
9/26/2001	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	5	8200 Ae	0.15	0.54	Yes	Study Area
9/26/2001	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	7.6	8200 Ae	0.15	0.54	Yes	Study Area
9/26/2001	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	4.5	8200 Ae	0.15	0.54	Yes	Upriver
9/26/2001	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	4	8200 Ae	0.15	0.54	Yes	Upriver

Table 3.1-9. TSS Data and Associated Discharge and Precipitation Values.

Sample Date	Reach	Data Set	Location Name	River Mile	TSS (mg/L)	Q (cfs)	Precipitation on Day of Sampling	Precipitation on Day Prior to Sampling	Precipitation-influenced TSS? <sup>a</sup>	Upriver or Study Area
10/10/2001	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	5	8400 Ae	0.53	0.00	Yes	Study Area
10/10/2001	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	4	8400 Ae	0.53	0.00	Yes	Study Area
10/10/2001	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	5	8400 Ae	0.53	0.00	Yes	Upriver
10/10/2001	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	4.3	8400 Ae	0.53	0.00	Yes	Upriver
10/31/2001	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	4	18000 Ae	0.15	0.75	Yes	Study Area
10/31/2001	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	4	18000 Ae	0.15	0.75	Yes	Study Area
10/31/2001	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	4.4	18000 Ae	0.15	0.75	Yes	Upriver
10/31/2001	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	4.8	18000 Ae	0.15	0.75	Yes	Upriver
11/14/2001	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	3	21000 Ae	0.30	0.78	Yes	Study Area
11/14/2001	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	4	21000 Ae	0.30	0.78	Yes	Study Area
11/14/2001	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	4	21000 Ae	0.30	0.78	Yes	Upriver
11/14/2001	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	4	21000 Ae	0.30	0.78	Yes	Upriver
11/28/2001	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	12	48000 Ae	1.41	0.00	Yes	Study Area
11/28/2001	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	11	48000 Ae	1.41	0.00	Yes	Study Area
11/28/2001	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	16	48000 Ae	1.41	0.00	Yes	Upriver
11/28/2001	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	20	48000 Ae	1.41	0.00	Yes	Upriver
12/5/2001	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	20	100000 Ae	0.14	0.38	Yes	Study Area
12/5/2001	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	26	100000 Ae	0.14	0.38	Yes	Study Area
12/5/2001	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	36	100000 Ae	0.14	0.38	Yes	Upriver
12/5/2001	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	44	100000 Ae	0.14	0.38	Yes	Upriver
12/19/2001	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	33.6	130000 Ae	0.12	0.39	Yes	Study Area
12/19/2001	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	35.4	130000 Ae	0.12	0.39	Yes	Study Area
12/19/2001	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	43.4	130000 Ae	0.12	0.39	Yes	Upriver
12/19/2001	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	35.4	130000 Ae	0.12	0.39	Yes	Upriver
1/9/2002	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	38	110000 Ae	0.00	0.06	No	Study Area
1/9/2002	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	49.3	110000 Ae	0.00	0.06	No	Study Area
1/9/2002	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	62.5	110000 Ae	0.00	0.06	No	Upriver
1/9/2002	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	61	110000 Ae	0.00	0.06	No	Upriver
1/23/2002	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	29	98000 Ae	0.00	0.11	No	Study Area
1/23/2002	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	31	98000 Ae	0.00	0.11	No	Study Area
1/23/2002	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	47.2	98000 Ae	0.00	0.11	No	Upriver
1/23/2002	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	50.8	98000 Ae	0.00	0.11	No	Upriver
2/13/2002	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	8.8	46000 Ae	0.00	0.00	No	Study Area
2/13/2002	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	9.2	46000 Ae	0.00	0.00	No	Study Area
2/13/2002	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	8.4	46000 Ae	0.00	0.00	No	Upriver
2/13/2002	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	10	46000 Ae	0.00	0.00	No	Upriver
2/27/2002	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	13	35000 Ae	0.00	0.00	No	Study Area
2/27/2002	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	8.4	35000 Ae	0.00	0.00	No	Study Area
2/27/2002	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	8.6	35000 Ae	0.00	0.00	No	Upriver
2/27/2002	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	8.6	35000 Ae	0.00	0.00	No	Upriver
3/13/2002	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	18	88000 Ae	0.10	0.30	Yes	Study Area
3/13/2002	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	27	88000 Ae	0.10	0.30	Yes	Study Area
3/13/2002	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	43.1	88000 Ae	0.10	0.30	Yes	Upriver
3/13/2002	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	48	88000 Ae	0.10	0.30	Yes	Upriver
3/27/2002	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	5.2	40000 Ae	0.00	0.00	No	Study Area

Table 3.1-9. TSS Data and Associated Discharge and Precipitation Values.

Sample Date	Reach	Data Set	Location Name	River Mile	TSS (mg/L)	Q (cfs)	Precipitation on Day of Sampling	Precipitation on Day Prior to Sampling	Precipitation-influenced TSS? <sup>a</sup>	Upriver or Study Area
3/27/2002	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	7.2	40000 Ae	0.00	0.00	No	Study Area
3/27/2002	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	7.2	40000 Ae	0.00	0.00	No	Upriver
3/27/2002	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	12	40000 Ae	0.00	0.00	No	Upriver
4/10/2002	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	6	43000 Ae	0.23	0.35	Yes	Study Area
4/10/2002	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	6	43000 Ae	0.23	0.35	Yes	Study Area
4/10/2002	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	4.4	43000 Ae	0.23	0.35	Yes	Upriver
4/10/2002	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	3.8	43000 Ae	0.23	0.35	Yes	Upriver
4/24/2002	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	4.4	31000 Ae	0.00	0.00	No	Study Area
4/24/2002	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	5.2	31000 Ae	0.00	0.00	No	Study Area
4/24/2002	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	5.2	31000 Ae	0.00	0.00	No	Upriver
4/24/2002	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	7.2	31000 Ae	0.00	0.00	No	Upriver
5/8/2002	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	5.6	24000 Ae	0.00	0.01	No	Study Area
5/8/2002	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	4.4	24000 Ae	0.00	0.01	No	Study Area
5/8/2002	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	4	24000 Ae	0.00	0.01	No	Upriver
5/8/2002	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	4	24000 Ae	0.00	0.01	No	Upriver
5/22/2002	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	4	24000 Ae	0.12	0.08	No	Study Area
5/22/2002	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	3	24000 Ae	0.12	0.08	No	Study Area
5/22/2002	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	3	24000 Ae	0.12	0.08	No	Upriver
5/22/2002	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	2	24000 Ae	0.12	0.08	No	Upriver
6/12/2002	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	9.6	19000 Ae	0.00	0.00	No	Study Area
6/12/2002	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	4.8	19000 Ae	0.00	0.00	No	Study Area
6/12/2002	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	6	19000 Ae	0.00	0.00	No	Upriver
6/12/2002	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	3	19000 Ae	0.00	0.00	No	Upriver
6/26/2002	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	7.7	12000 Ae	0.00	0.00	No	Study Area
6/26/2002	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	3.8	12000 Ae	0.00	0.00	No	Study Area
6/26/2002	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	4	12000 Ae	0.00	0.00	No	Upriver
6/26/2002	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	3.7	12000 Ae	0.00	0.00	No	Upriver
7/24/2002	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	7.2	8600 Ae	0.00	0.00	No	Study Area
7/24/2002	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	6.8	8600 Ae	0.00	0.00	No	Study Area
7/24/2002	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	6.6	8600 Ae	0.00	0.00	No	Upriver
7/24/2002	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	4	8600 Ae	0.00	0.00	No	Upriver
8/7/2002	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	39.4	8400 Ae	0.00	0.00	No	Study Area
8/7/2002	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	8	8400 Ae	0.00	0.00	No	Study Area
8/7/2002	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	6.8	8400 Ae	0.00	0.00	No	Upriver
8/7/2002	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	4	8400 Ae	0.00	0.00	No	Upriver
8/21/2002	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	11	8700 Ae	0.00	0.00	No	Study Area
8/21/2002	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	2	8700 Ae	0.00	0.00	No	Study Area
8/21/2002	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	4.4	8700 Ae	0.00	0.00	No	Upriver
8/21/2002	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	4	8700 Ae	0.00	0.00	No	Upriver
9/4/2002	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	4.6	8700 Ae	0.00	0.00	No	Study Area
9/4/2002	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	5.6	8700 Ae	0.00	0.00	No	Study Area
9/4/2002	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	5.2	8700 Ae	0.00	0.00	No	Upriver
9/4/2002	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	3.2	8700 Ae	0.00	0.00	No	Upriver
9/18/2002	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	8.6	10000 Ae	0.00	0.05	No	Study Area
9/18/2002	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	26	10000 Ae	0.00	0.05	No	Study Area

Table 3.1-9. TSS Data and Associated Discharge and Precipitation Values.

Sample Date	Reach	Data Set	Location Name	River Mile	TSS (mg/L)	Q (cfs)	Precipitation on Day of Sampling	Precipitation on Day Prior to Sampling	Precipitation-influenced TSS? <sup>a</sup>	Upriver or Study Area
9/18/2002	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	5	10000 Ae	0.00	0.05	No	Upriver
9/18/2002	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	3.2	10000 Ae	0.00	0.05	No	Upriver
10/1/2002	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	8	11000 Ae	0.00	0.73	Yes	Study Area
10/1/2002	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	6.5	11000 Ae	0.00	0.73	Yes	Study Area
10/1/2002	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	5	11000 Ae	0.00	0.73	Yes	Upriver
10/1/2002	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	17	11000 Ae	0.00	0.73	Yes	Upriver
10/16/2002	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	4.8	11000 Ae	0.00	0.00	No	Study Area
10/16/2002	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	4.4	11000 Ae	0.00	0.00	No	Study Area
10/16/2002	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	5.2	11000 Ae	0.00	0.00	No	Upriver
10/16/2002	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	3	11000 Ae	0.00	0.00	No	Upriver
11/13/2002	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	4	19000 Ae	0.35	0.28	Yes	Study Area
11/13/2002	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	2.5	19000 Ae	0.35	0.28	Yes	Study Area
11/13/2002	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	2	19000 Ae	0.35	0.28	Yes	Upriver
11/13/2002	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	4	19000 Ae	0.35	0.28	Yes	Upriver
12/4/2002	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	6	8800 Ae	0.06	0.00	No	Study Area
12/4/2002	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	6	8800 Ae	0.06	0.00	No	Study Area
12/4/2002	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	4.4	8800 Ae	0.06	0.00	No	Upriver
12/4/2002	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	4	8800 Ae	0.06	0.00	No	Upriver
1/8/2003	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	14	73000 Ae	0.00	0.00	No	Study Area
1/8/2003	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	14	73000 Ae	0.00	0.00	No	Study Area
1/8/2003	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	20	73000 Ae	0.00	0.00	No	Upriver
1/8/2003	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	19	73000 Ae	0.00	0.00	No	Upriver
2/5/2003	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	23	91000 Ae	0.00	0.00	No	Study Area
2/5/2003	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	23.4	91000 Ae	0.00	0.00	No	Study Area
2/5/2003	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	25.8	91000 Ae	0.00	0.00	No	Upriver
2/5/2003	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	23	91000 Ae	0.00	0.00	No	Upriver
3/4/2003	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	6.2	24000 Ae	0.06	0.01	No	Study Area
3/4/2003	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	6	24000 Ae	0.06	0.01	No	Study Area
3/4/2003	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	5.2	24000 Ae	0.06	0.01	No	Upriver
3/4/2003	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	8.4 J	24000 Ae	0.06	0.01	No	Upriver
4/9/2003	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	11	48600 A	0.04	0.11	No	Study Area
4/9/2003	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	8.4	48600 A	0.04	0.11	No	Study Area
4/9/2003	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	10	48600 A	0.04	0.11	No	Upriver
4/9/2003	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	13	48600 A	0.04	0.11	No	Upriver
5/15/2003	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	6	24000 Ae	0.18	0.00	No	Study Area
5/15/2003	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	4	24000 Ae	0.18	0.00	No	Study Area
5/15/2003	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	4	24000 Ae	0.18	0.00	No	Upriver
5/15/2003	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	5	24000 Ae	0.18	0.00	No	Upriver
6/11/2003	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	5	16000 Ae	0.00	0.00	No	Study Area
6/11/2003	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	5	16000 Ae	0.00	0.00	No	Study Area
6/11/2003	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	6	16000 Ae	0.00	0.00	No	Upriver
6/11/2003	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	4	16000 Ae	0.00	0.00	No	Upriver
7/9/2003	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	10	8800 Ae	0.00	0.00	No	Study Area
7/9/2003	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	5	8800 Ae	0.00	0.00	No	Study Area
7/9/2003	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	8	8800 Ae	0.00	0.00	No	Upriver

Table 3.1-9. TSS Data and Associated Discharge and Precipitation Values.

Sample Date	Reach	Data Set	Location Name	River Mile	TSS (mg/L)	Q (cfs)	Precipitation on Day of Sampling	Precipitation on Day Prior to Sampling	Precipitation-influenced TSS? <sup>a</sup>	Upriver or Study Area
7/9/2003	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	5	8800 Ae	0.00	0.00	No	Upriver
8/6/2003	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	9	7800 Ae	0.00	0.12	No	Study Area
8/6/2003	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	10	7800 Ae	0.00	0.12	No	Study Area
8/6/2003	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	6	7800 Ae	0.00	0.12	No	Upriver
8/6/2003	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	4	7800 Ae	0.00	0.12	No	Upriver
9/3/2003	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	8	7500 Ae	0.00	0.00	No	Study Area
9/3/2003	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	6	7500 Ae	0.00	0.00	No	Study Area
9/3/2003	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	4	7500 Ae	0.00	0.00	No	Upriver
9/3/2003	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	2 U	7500 Ae	0.00	0.00	No	Upriver
10/1/2003	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	5	8600 Ae	0.00	0.00	No	Study Area
10/1/2003	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	6	8600 Ae	0.00	0.00	No	Study Area
10/1/2003	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	5	8600 Ae	0.00	0.00	No	Upriver
10/1/2003	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	2	8600 Ae	0.00	0.00	No	Upriver
11/4/2003	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	4	9500 Ae	0.00	0.00	No	Study Area
11/4/2003	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	2	9500 Ae	0.00	0.00	No	Study Area
11/4/2003	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	2	9500 Ae	0.00	0.00	No	Upriver
11/4/2003	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	2 U	9500 Ae	0.00	0.00	No	Upriver
12/3/2003	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	9	39100 A	0.01	0.31	Yes	Study Area
12/3/2003	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	8	39100 A	0.01	0.31	Yes	Study Area
12/3/2003	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	10	39100 A	0.01	0.31	Yes	Upriver
12/3/2003	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	12	39100 A	0.01	0.31	Yes	Upriver
1/14/2004	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	9	70600 A	0.31	0.00	Yes	Study Area
1/14/2004	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	10	70600 A	0.31	0.00	Yes	Study Area
1/14/2004	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	11	70600 A	0.31	0.00	Yes	Upriver
1/14/2004	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	12	70600 A	0.31	0.00	Yes	Upriver
2/4/2004	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	17	96800 A	0.03	0.08	No	Study Area
2/4/2004	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	18	96800 A	0.03	0.08	No	Study Area
2/4/2004	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	22	96800 A	0.03	0.08	No	Upriver
2/4/2004	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	19	96800 A	0.03	0.08	No	Upriver
3/3/2004	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	8	42000 Ae	0.22	0.00	Yes	Study Area
3/3/2004	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	8	42000 Ae	0.22	0.00	Yes	Study Area
3/3/2004	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	10	42000 Ae	0.22	0.00	Yes	Upriver
3/3/2004	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	9	42000 Ae	0.22	0.00	Yes	Upriver
4/7/2004	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	4	26000 Ae	0.00	0.00	No	Study Area
4/7/2004	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	4	26000 Ae	0.00	0.00	No	Study Area
4/7/2004	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	4	26000 Ae	0.00	0.00	No	Upriver
4/7/2004	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	3	26000 Ae	0.00	0.00	No	Upriver
5/5/2004	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	6	21000 Ae	0.00	0.03	No	Study Area
5/5/2004	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	5	21000 Ae	0.00	0.03	No	Study Area
5/5/2004	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	4	21000 Ae	0.00	0.03	No	Upriver
5/5/2004	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	4	21000 Ae	0.00	0.03	No	Upriver
6/2/2004	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	7	24000 Ae	0.00	0.00	No	Study Area
6/2/2004	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	4	24000 Ae	0.00	0.00	No	Study Area
6/2/2004	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	5	24000 Ae	0.00	0.00	No	Upriver
6/2/2004	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	3	24000 Ae	0.00	0.00	No	Upriver



Table 3.1-9. TSS Data and Associated Discharge and Precipitation Values.

Sample Date	Reach	Data Set	Location Name	River Mile	TSS (mg/L)	Q (cfs)	Precipitation on Day of Sampling	Precipitation on Day Prior to Sampling	Precipitation-influenced TSS? <sup>a</sup>	Upriver or Study Area
7/14/2004	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	7	8600 Ae	0.00	0.00	No	Study Area
7/14/2004	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	5	8600 Ae	0.00	0.00	No	Study Area
7/14/2004	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	6	8600 Ae	0.00	0.00	No	Upriver
7/14/2004	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	5	8600 Ae	0.00	0.00	No	Upriver
8/10/2004	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	8	8200 Ae	0.00	0.00	No	Study Area
8/10/2004	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	5	8200 Ae	0.00	0.00	No	Study Area
8/10/2004	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	6	8200 Ae	0.00	0.00	No	Upriver
8/10/2004	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	4	8200 Ae	0.00	0.00	No	Upriver
9/7/2004	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	6	9600 Ae	0.00	0.00	No	Study Area
9/7/2004	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	4	9600 Ae	0.00	0.00	No	Study Area
9/7/2004	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	4	9600 Ae	0.00	0.00	No	Upriver
9/7/2004	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	2	9600 Ae	0.00	0.00	No	Upriver
10/6/2004	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	7	12700 Ae	0.30	0.25	Yes	Study Area
10/6/2004	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	4	12700 Ae	0.30	0.25	Yes	Study Area
10/6/2004	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	3	12700 Ae	0.30	0.25	Yes	Upriver
10/6/2004	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	3	12700 Ae	0.30	0.25	Yes	Upriver
11/3/2004	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	4	33600 Ae	0.00	0.80	Yes	Study Area
11/3/2004	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	4	33600 Ae	0.00	0.80	Yes	Study Area
11/3/2004	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	6	33600 Ae	0.00	0.80	Yes	Upriver
11/3/2004	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	6	33600 Ae	0.00	0.80	Yes	Upriver
11/8/2004	Study Area	R2A Nov 2004 Low Flow	W013-1	6.7	5 U	24700 Ae	0.00	0.00	No	Study Area
11/9/2004	Study Area	R2A Nov 2004 Low Flow	W013-2	6.7	5 U	23600 Ae	0.00	0.00	No	Study Area
11/10/2004	Study Area	R2A Nov 2004 Low Flow	W018	8.3	5 U	23100 Ae	0.04	0.00	No	Study Area
11/12/2004	Study Area	R2A Nov 2004 Low Flow	W001	2.0	5 U	21500 Ae	0.01	0.00	No	Study Area
11/12/2004	Study Area	R2A Nov 2004 Low Flow	W002	2.2	5	21500 Ae	0.01	0.00	No	Study Area
11/12/2004	Multnomah Channel	R2A Nov 2004 Low Flow	W003	3.0	7	21500 Ae	0.01	0.00	No	Study Area
11/15/2004	Study Area	R2A Nov 2004 Low Flow	W023	11	8 T	18500 Ae	0.37	0.00	Yes	Study Area
11/17/2004	Study Area	R2A Nov 2004 Low Flow	W011	6.3	5	17800 Ae	0.00	0.05	No	Study Area
11/18/2004	Study Area	R2A Nov 2004 Low Flow	W004	3.7	5 U	17400 Ae	0.35	0.00	Yes	Study Area
11/19/2004	Study Area	R2A Nov 2004 Low Flow	W006	4	8	17400 Ae	0.00	0.35	Yes	Study Area
11/19/2004	Study Area	R2A Nov 2004 Low Flow	W007	4.4	5 UT	17400 Ae	0.00	0.35	Yes	Study Area
11/22/2004	Study Area	R2A Nov 2004 Low Flow	W005	3.9	7	15400 Ae	0.01	0.00	No	Study Area
11/23/2004	Study Area	R2A Nov 2004 Low Flow	W008	4.6	6 T	14900 Ae	0.15	0.01	No	Study Area
11/23/2004	Study Area	R2A Nov 2004 Low Flow	W010	5.7	7	14900 Ae	0.15	0.01	No	Study Area
11/29/2004	Study Area	R2A Nov 2004 Low Flow	W015	6.9	5 U	19800 Ae	0.24	0.00	Yes	Study Area
11/30/2004	Study Area	R2A Nov 2004 Low Flow	W016-1	7.2	5 U	18900 Ae	0.07	0.24	Yes	Study Area
11/30/2004	Study Area	R2A Nov 2004 Low Flow	W016-2	7.2	7	18900 Ae	0.07	0.24	Yes	Study Area
12/1/2004	Study Area	R2A Nov 2004 Low Flow	W009	5.6	5 U	18600 Ae	0.02	0.07	No	Study Area
12/1/2004	Study Area	R2A Nov 2004 Low Flow	W014	6.7	5 U	18600 Ae	0.02	0.07	No	Study Area
12/1/2004	Study Area	R2A Nov 2004 Low Flow	W017	7.5	7	18600 Ae	0.02	0.07	No	Study Area
12/1/2004	Study Area	R2A Nov 2004 Low Flow	W021	8.7	5 U	18600 Ae	0.02	0.07	No	Study Area
12/1/2004	Study Area	R2A Nov 2004 Low Flow	W020	9.1	5 U	18600 Ae	0.02	0.07	No	Study Area
12/2/2004	Study Area	R2A Nov 2004 Low Flow	W012	6.3	5	18300 Ae	0.00	0.02	No	Study Area
12/2/2004	Study Area	R2A Nov 2004 Low Flow	W019	8.6	5 U	18300 Ae	0.00	0.02	No	Study Area
12/2/2004	Study Area	R2A Nov 2004 Low Flow	W022	9.7	5 U	18300 Ae	0.00	0.02	No	Study Area

Table 3.1-9. TSS Data and Associated Discharge and Precipitation Values.

Sample Date	Reach	Data Set	Location Name	River Mile	TSS (mg/L)	Q (cfs)	Precipitation on Day of Sampling	Precipitation on Day Prior to Sampling	Precipitation-influenced TSS? <sup>a</sup>	Upriver or Study Area
12/8/2004	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	4	31200 Ae	0.42	0.56	Yes	Study Area
12/8/2004	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	4	31200 Ae	0.42	0.56	Yes	Study Area
12/8/2004	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	4	31200 Ae	0.42	0.56	Yes	Upriver
12/8/2004	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	7	31200 Ae	0.42	0.56	Yes	Upriver
1/5/2005	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	5	19600 Ae	0.00	0.00	No	Study Area
1/5/2005	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	3	19600 Ae	0.00	0.00	No	Study Area
1/5/2005	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	3	19600 Ae	0.00	0.00	No	Upriver
1/5/2005	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	5	19600 Ae	0.00	0.00	No	Upriver
2/1/2005	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	4	18100 Ae	0.00	0.01	No	Study Area
2/1/2005	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	3	18100 Ae	0.00	0.01	No	Study Area
2/1/2005	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	4	18100 Ae	0.00	0.01	No	Upriver
2/1/2005	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	4	18100 Ae	0.00	0.01	No	Upriver
3/1/2005	Study Area	R2A March 2005 Low Flow	W013-1	6.7	5 U	11900 Ae	0.00	0.17	No	Study Area
3/2/2005	Study Area	R2A March 2005 Low Flow	W013-2	6.7	11.5 T	11600 Ae	0.00	0.00	No	Study Area
3/3/2005	Study Area	R2A March 2005 Low Flow	W018	8.3	5 U	11600 Ae	0.00	0.00	No	Study Area
3/4/2005	Study Area	R2A March 2005 Low Flow	W001	2.0	5	11400 Ae	0.00	0.00	No	Study Area
3/4/2005	Study Area	R2A March 2005 Low Flow	W002	2.2	5 U	11400 Ae	0.00	0.00	No	Study Area
3/4/2005	Study Area	R2A March 2005 Low Flow	W002	2.2	5 U	11400 Ae	0.00	0.00	No	Study Area
3/4/2005	Multnomah Channel	R2A March 2005 Low Flow	W003	3.0	5 U	11400 Ae	0.00	0.00	No	Study Area
3/4/2005	Study Area	R2A March 2005 Low Flow	W006	4	10 T	11400 Ae	0.00	0.00	No	Study Area
3/7/2005	Study Area	R2A March 2005 Low Flow	W023	11	6.5 T	10100 Ae	0.00	0.00	No	Study Area
3/9/2005	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	4	9750 Ae	0.00	0.00	No	Study Area
3/9/2005	Study Area	R2A March 2005 Low Flow	W010	5.7	6	9750 Ae	0.00	0.00	No	Study Area
3/9/2005	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	4	9750 Ae	0.00	0.00	No	Study Area
3/9/2005	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	5	9750 Ae	0.00	0.00	No	Upriver
3/9/2005	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	6	9750 Ae	0.00	0.00	No	Upriver
3/10/2005	Study Area	R2A March 2005 Low Flow	W005	3.9	6	9680 Ae	0.00	0.00	No	Study Area
3/11/2005	Study Area	R2A March 2005 Low Flow	W007	4.4	5	9490 Ae	0.00	0.00	No	Study Area
3/11/2005	Study Area	R2A March 2005 Low Flow	W008	4.6	5.5 T	9490 Ae	0.00	0.00	No	Study Area
3/11/2005	Study Area	R2A March 2005 Low Flow	W009	5.6	5 U	9490 Ae	0.00	0.00	No	Study Area
3/14/2005	Study Area	R2A March 2005 Low Flow	W015	6.9	7	8730 Ae	0.00	0.00	No	Study Area
3/15/2005	Study Area	R2A March 2005 Low Flow	W016-1	7.2	5 UT	8600 Ae	0.00	0.00	No	Study Area
3/16/2005	Study Area	R2A March 2005 Low Flow	W017	7.5	10	8390 Ae	0.13	0.00	No	Study Area
3/16/2005	Study Area	R2A March 2005 Low Flow	W019	8.6	14 T	8390 Ae	0.13	0.00	No	Study Area
3/16/2005	Study Area	R2A March 2005 Low Flow	W021	8.7	5 U	8390 Ae	0.13	0.00	No	Study Area
3/16/2005	Study Area	R2A March 2005 Low Flow	W020	9.1	5 U	8390 Ae	0.13	0.00	No	Study Area
3/16/2005	Study Area	R2A March 2005 Low Flow	W022	9.7	9	8390 Ae	0.13	0.00	No	Study Area
3/17/2005	Study Area	R2A March 2005 Low Flow	W004	3.7	7	8640 Ae	0.00	0.13	No	Study Area
3/17/2005	Study Area	R2A March 2005 Low Flow	W011	6.3	5 U	8640 Ae	0.00	0.13	No	Study Area
3/17/2005	Study Area	R2A March 2005 Low Flow	W012	6.3	5 U	8640 Ae	0.00	0.13	No	Study Area
3/17/2005	Study Area	R2A March 2005 Low Flow	W014	6.7	6	8640 Ae	0.00	0.13	No	Study Area
4/13/2005	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	6	36400 Ae	0.11	0.14	Yes	Study Area
4/13/2005	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	7	36400 Ae	0.11	0.14	Yes	Study Area
4/13/2005	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	8	36400 Ae	0.11	0.14	Yes	Upriver
4/13/2005	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	9	36400 Ae	0.11	0.14	Yes	Upriver

Table 3.1-9. TSS Data and Associated Discharge and Precipitation Values.

Sample Date	Reach	Data Set	Location Name	River Mile	TSS (mg/L)	Q (cfs)	Precipitation on Day of Sampling	Precipitation on Day Prior to Sampling	Precipitation-influenced TSS? <sup>a</sup>	Upriver or Study Area
5/4/2005	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	4	22400 Ae	0.20	0.05	Yes	Study Area
5/4/2005	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	4	22400 Ae	0.20	0.05	Yes	Study Area
5/4/2005	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	5	22400 Ae	0.20	0.05	Yes	Upriver
5/4/2005	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	5	22400 Ae	0.20	0.05	Yes	Upriver
6/8/2005	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	7	28200 Ae	0.00	0.15	No	Study Area
6/8/2005	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	6	28200 Ae	0.00	0.15	No	Study Area
6/8/2005	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	8	28200 Ae	0.00	0.15	No	Upriver
6/8/2005	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	7	28200 Ae	0.00	0.15	No	Upriver
7/5/2005	Study Area	R2A July 2005 Low Flow	W001	2.0	7 J	10800 Ae	0.00	0.00	No	Study Area
7/5/2005	Study Area	R2A July 2005 Low Flow	W002	2.2	13 J	10800 Ae	0.00	0.00	No	Study Area
7/5/2005	Study Area	R2A July 2005 Low Flow	W002	2.2	15 J	10800 Ae	0.00	0.00	No	Study Area
7/5/2005	Multnomah Channel	R2A July 2005 Low Flow	W003	3.0	15 J	10800 Ae	0.00	0.00	No	Study Area
7/5/2005	Study Area	R2A July 2005 Low Flow	W004	3.7	9 J	10800 Ae	0.00	0.00	No	Study Area
7/6/2005	Study Area	R2A July 2005 Low Flow	W013-1	6.7	8 J	10800 Ae	0.01	0.00	No	Study Area
7/8/2005	Study Area	R2A July 2005 Low Flow	W006	4	7 J	10300 Ae	0.24	0.00	Yes	Study Area
7/8/2005	Study Area	R2A July 2005 Low Flow	W007	4.4	7 J	10300 Ae	0.24	0.00	Yes	Study Area
7/8/2005	Study Area	R2A July 2005 Low Flow	W008	4.6	4 J	10300 Ae	0.24	0.00	Yes	Study Area
7/8/2005	Study Area	R2A July 2005 Low Flow	W009	5.6	10 J	10300 Ae	0.24	0.00	Yes	Study Area
7/11/2005	Study Area	R2A July 2005 Low Flow	W023	11	17 J	10600 Ae	0.00	0.04	No	Study Area
7/12/2005	Study Area	R2A July 2005 Low Flow	W011	6.3	25 J	10600 Ae	0.00	0.00	No	Study Area
7/13/2005	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	6	10400 Ae	0.00	0.00	No	Study Area
7/13/2005	Study Area	R2A July 2005 Low Flow	W005	3.9	8 J	10400 Ae	0.00	0.00	No	Study Area
7/13/2005	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	4	10400 Ae	0.00	0.00	No	Study Area
7/13/2005	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	5	10400 Ae	0.00	0.00	No	Upriver
7/13/2005	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	5	10400 Ae	0.00	0.00	No	Upriver
7/14/2005	Study Area	R2A July 2005 Low Flow	W018	8.3	4 J	9910 Ae	0.00	0.00	No	Study Area
7/15/2005	Study Area	R2A July 2005 Low Flow	W010	5.7	7 J	9750 Ae	0.00	0.00	No	Study Area
7/15/2005	Study Area	R2A July 2005 Low Flow	W012	6.3	13 J	9750 Ae	0.00	0.00	No	Study Area
7/15/2005	Study Area	R2A July 2005 Low Flow	W014	6.7	5 J	9750 Ae	0.00	0.00	No	Study Area
7/15/2005	Study Area	R2A July 2005 Low Flow	W017	7.5	10 J	9750 Ae	0.00	0.00	No	Study Area
7/18/2005	Study Area	R2A July 2005 Low Flow	W016-1	7.2	7 J	9660 Ae	0.00	0.00	No	Study Area
7/19/2005	Study Area	R2A July 2005 Low Flow	W015	6.9	5 J	9310 Ae	0.00	0.00	No	Study Area
7/20/2005	Study Area	R2A July 2005 Low Flow	W019	8.6	12 J	8910 Ae	0.00	0.00	No	Study Area
7/20/2005	Study Area	R2A July 2005 Low Flow	W021	8.7	4 J	8910 Ae	0.00	0.00	No	Study Area
7/20/2005	Study Area	R2A July 2005 Low Flow	W020	9.1	3 J	8910 Ae	0.00	0.00	No	Study Area
7/20/2005	Study Area	R2A July 2005 Low Flow	W022	9.7	8 J	8910 Ae	0.00	0.00	No	Study Area
8/16/2005	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	11	7950 Ae	0.00	0.00	No	Study Area
8/16/2005	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	8	7950 Ae	0.00	0.00	No	Study Area
8/16/2005	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	8	7950 Ae	0.00	0.00	No	Upriver
8/16/2005	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	5	7950 Ae	0.00	0.00	No	Upriver
9/14/2005	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	6	9980 Ae	0.00	0.00	No	Study Area
9/14/2005	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	6	9980 Ae	0.00	0.00	No	Study Area
9/14/2005	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	5	9980 Ae	0.00	0.00	No	Upriver
9/14/2005	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	2	9980 Ae	0.00	0.00	No	Upriver
10/12/2005	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	7	11600 Ae	0.00	0.00	No	Study Area

Table 3.1-9. TSS Data and Associated Discharge and Precipitation Values.

Sample Date	Reach	Data Set	Location Name	River Mile	TSS (mg/L)	Q (cfs)	Precipitation on Day of Sampling	Precipitation on Day Prior to Sampling	Precipitation-influenced TSS? <sup>a</sup>	Upriver or Study Area
10/12/2005	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	2	11600 Ae	0.00	0.00	No	Study Area
10/12/2005	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	4	11600 Ae	0.00	0.00	No	Upriver
10/12/2005	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	3	11600 Ae	0.00	0.00	No	Upriver
11/9/2005	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	9	42100 A	0.00	0.00	No	Study Area
11/9/2005	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	11	42100 A	0.00	0.00	No	Study Area
11/9/2005	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	13	42100 A	0.00	0.00	No	Upriver
11/9/2005	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	12	42100 A	0.00	0.00	No	Upriver
11/22/2005	Upriver	Hydrodynamic Model Data	HMW05	23.7	8	24200 A	0.00	0.00	No	Upriver
12/7/2005	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	10	44500 A	0.00	0.00	No	Study Area
12/7/2005	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	10	44500 A	0.00	0.00	No	Study Area
12/7/2005	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	15	44500 A	0.00	0.00	No	Upriver
12/7/2005	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	14	44500 A	0.00	0.00	No	Upriver
12/22/2005	Upriver	Hydrodynamic Model Data	HMW05	23	50	71100 A	0.77	0.58	Yes	Upriver
1/18/2006	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	34	164000 A	0.16	0.48	Yes	Study Area
1/18/2006	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	41	164000 A	0.16	0.48	Yes	Study Area
1/18/2006	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	42	164000 A	0.16	0.48	Yes	Upriver
1/18/2006	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	43	164000 A	0.16	0.48	Yes	Upriver
1/19/2006	Upriver	R3A Jan 2006 High Flow	W024	15.9	49 J	169000 A	0.03	0.16	No	Upriver
1/20/2006	Study Area	R3A Jan 2006 High Flow	W023	11	62 T	169000 A	0.45	0.03	Yes	Study Area
1/20/2006	Study Area	R3A Jan 2006 High Flow	W023	11	54	169000 A	0.45	0.03	Yes	Study Area
1/21/2006	Study Area	R3A Jan 2006 High Flow	W005	3.9	49	167000 A	0.05	0.45	Yes	Study Area
2/3/2006	Upriver	Hydrodynamic Model Data	HMW05	23	39	143000 A	0.20	0.31	Yes	Upriver
2/7/2006	Upriver	Hydrodynamic Model Data	HMW05	23	25	115000 A	0.00	0.00	No	Upriver
2/11/2006	Upriver	Hydrodynamic Model Data	HMW05	23	20	61200 A	0.00	0.00	No	Upriver
2/15/2006	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	12	38600 A	0.00	0.09	No	Study Area
2/15/2006	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	14	38600 A	0.00	0.09	No	Study Area
2/15/2006	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	14	38600 A	0.00	0.09	No	Upriver
2/15/2006	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	15	38600 A	0.00	0.09	No	Upriver
2/21/2006	Upriver	Hydrodynamic Model Data	HMW05	23	7	22400 A	0.05	0.00	No	Upriver
2/21/2006	Upriver	Hydrodynamic Model Data	HMW05	23	7	22400 A	0.05	0.00	No	Upriver
3/1/2006	Upriver	Hydrodynamic Model Data	HMW05	23	9	31800 A	0.00	0.62	Yes	Upriver
3/3/2006	Upriver	Hydrodynamic Model Data	HMW05	23	22	36300 A	0.00	0.00	No	Upriver
3/3/2006	Upriver	Hydrodynamic Model Data	HMW05	23	21.5 T	36300 A	0.00	0.00	No	Upriver
3/15/2006	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	10	33700 A	0.12	0.09	Yes	Study Area
3/15/2006	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	9	33700 A	0.12	0.09	Yes	Study Area
3/15/2006	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	8	33700 A	0.12	0.09	Yes	Upriver
3/15/2006	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	9	33700 A	0.12	0.09	Yes	Upriver
4/3/2006	Study Area	Hydrodynamic Model Data	HMW01	2	8	37300 Ae	0.08	0.06	No	Study Area
4/3/2006	Study Area	Hydrodynamic Model Data	HMW01	2	9	37300 Ae	0.08	0.06	No	Study Area
4/3/2006	Study Area	Hydrodynamic Model Data	HMW01	2	9	37300 Ae	0.08	0.06	No	Study Area
4/3/2006	Study Area	Hydrodynamic Model Data	HMW01	2	9	37300 Ae	0.08	0.06	No	Study Area
4/3/2006	Study Area	Hydrodynamic Model Data	HMW01	2	8	37300 Ae	0.08	0.06	No	Study Area
4/3/2006	Study Area	Hydrodynamic Model Data	HMW01	2	7	37300 Ae	0.08	0.06	No	Study Area
4/3/2006	Multnomah Channel	Hydrodynamic Model Data	HMW02	3	8	37300 Ae	0.08	0.06	No	Study Area
4/3/2006	Multnomah Channel	Hydrodynamic Model Data	HMW02	3	8	37300 Ae	0.08	0.06	No	Study Area

Table 3.1-9. TSS Data and Associated Discharge and Precipitation Values.

Sample Date	Reach	Data Set	Location Name	River Mile	TSS (mg/L)	Q (cfs)	Precipitation on Day of Sampling	Precipitation on Day Prior to Sampling	Precipitation-influenced TSS? <sup>a</sup>	Upriver or Study Area
4/3/2006	Multnomah Channel	Hydrodynamic Model Data	HMW02	3	8	37300 Ae	0.08	0.06	No	Study Area
4/3/2006	Multnomah Channel	Hydrodynamic Model Data	HMW02	3	7	37300 Ae	0.08	0.06	No	Study Area
4/3/2006	Multnomah Channel	Hydrodynamic Model Data	HMW02	3	7	37300 Ae	0.08	0.06	No	Study Area
4/3/2006	Multnomah Channel	Hydrodynamic Model Data	HMW02	3	9	37300 Ae	0.08	0.06	No	Study Area
4/3/2006	Multnomah Channel	Hydrodynamic Model Data	HMW02	3	9.5 T	37300 Ae	0.08	0.06	No	Study Area
4/4/2006	Study Area	Hydrodynamic Model Data	HMW03	6.3	8	36300 A	0.01	0.08	No	Study Area
4/4/2006	Study Area	Hydrodynamic Model Data	HMW03	6.3	8	36300 A	0.01	0.08	No	Study Area
4/4/2006	Study Area	Hydrodynamic Model Data	HMW03	6.3	7	36300 A	0.01	0.08	No	Study Area
4/4/2006	Study Area	Hydrodynamic Model Data	HMW03	6.3	8	36300 A	0.01	0.08	No	Study Area
4/4/2006	Study Area	Hydrodynamic Model Data	HMW03	6.3	9	36300 A	0.01	0.08	No	Study Area
4/4/2006	Study Area	Hydrodynamic Model Data	HMW03	6.3	9	36300 A	0.01	0.08	No	Study Area
4/4/2006	Study Area	Hydrodynamic Model Data	HMW04	11	8	36300 A	0.01	0.08	No	Study Area
4/4/2006	Study Area	Hydrodynamic Model Data	HMW04	11	9	36300 A	0.01	0.08	No	Study Area
4/4/2006	Study Area	Hydrodynamic Model Data	HMW04	11	8	36300 A	0.01	0.08	No	Study Area
4/4/2006	Study Area	Hydrodynamic Model Data	HMW04	11	9	36300 A	0.01	0.08	No	Study Area
4/4/2006	Study Area	Hydrodynamic Model Data	HMW04	11	10 T	36300 A	0.01	0.08	No	Study Area
4/4/2006	Study Area	Hydrodynamic Model Data	HMW04	11	12	36300 A	0.01	0.08	No	Study Area
4/4/2006	Study Area	Hydrodynamic Model Data	HMW04	11	9	36300 A	0.01	0.08	No	Study Area
4/4/2006	Study Area	Hydrodynamic Model Data	HMW04	11	10 T	36300 A	0.01	0.08	No	Study Area
4/5/2006	Upriver	Hydrodynamic Model Data	HMW05	23	9	36500 A	0.01	0.01	No	Upriver
6/7/2006	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	5	31200 Ae	0.00	0.00	No	Study Area
6/7/2006	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	4	31200 Ae	0.00	0.00	No	Study Area
6/7/2006	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	5	31200 Ae	0.00	0.00	No	Upriver
6/7/2006	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	6	31200 Ae	0.00	0.00	No	Upriver
7/12/2006	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	5	8830 Ae	0.45	0.00	Yes	Study Area
7/12/2006	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	5	8830 Ae	0.45	0.00	Yes	Study Area
7/12/2006	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	8	8830 Ae	0.45	0.00	Yes	Upriver
7/12/2006	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	4	8830 Ae	0.45	0.00	Yes	Upriver
8/9/2006	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	7	8220 Ae	0.00	0.00	No	Study Area
8/9/2006	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	7	8220 Ae	0.00	0.00	No	Study Area
8/9/2006	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	7	8220 Ae	0.00	0.00	No	Upriver
8/9/2006	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	5	8220 Ae	0.00	0.00	No	Upriver
9/4/2006	Study Area	R3A Sept 2006 Low Flow	W025E	2.0	8	8450 Ae	0.00	0.00	No	Study Area
9/4/2006	Study Area	R3A Sept 2006 Low Flow	W025M	2.0	6	8450 Ae	0.00	0.00	No	Study Area
9/5/2006	Study Area	R3A Sept 2006 Low Flow	W025W	2.0	4	8320 Ae	0.00	0.00	No	Study Area
9/5/2006	Study Area	R3A Sept 2006 Low Flow	W023M	10.9	1 U	8320 Ae	0.00	0.00	No	Study Area
9/6/2006	Study Area	R3A Sept 2006 Low Flow	W023E	11	5	8490 Ae	0.00	0.00	No	Study Area
9/6/2006	Study Area	R3A Sept 2006 Low Flow	W023W	11	10	8490 Ae	0.00	0.00	No	Study Area
9/7/2006	Multnomah Channel	R3A Sept 2006 Low Flow	W027	2.9	12 T	8640 Ae	0.00	0.00	No	Study Area
9/7/2006	Multnomah Channel	R3A Sept 2006 Low Flow	W027	2.9	6	8640 Ae	0.00	0.00	No	Study Area
9/8/2006	Study Area	R3A Sept 2006 Low Flow	W005	3.9	16	8860 Ae	0.00	0.00	No	Study Area
9/8/2006	Study Area	R3A Sept 2006 Low Flow	W005	3.9	8	8860 Ae	0.00	0.00	No	Study Area
9/12/2006	Study Area	R3A Sept 2006 Low Flow	W011	6.3	15	9240 Ae	0.00	0.00	No	Study Area
9/12/2006	Study Area	R3A Sept 2006 Low Flow	W011	6.3	6	9240 Ae	0.00	0.00	No	Study Area
9/13/2006	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	10	9080 Ae	0.00	0.00	No	Study Area

Table 3.1-9. TSS Data and Associated Discharge and Precipitation Values.

Sample Date	Reach	Data Set	Location Name	River Mile	TSS (mg/L)	Q (cfs)	Precipitation on Day of Sampling	Precipitation on Day Prior to Sampling	Precipitation-influenced TSS? <sup>a</sup>	Upriver or Study Area
9/13/2006	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	5	9080 Ae	0.00	0.00	No	Study Area
9/13/2006	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	4	9080 Ae	0.00	0.00	No	Upriver
9/13/2006	Upriver	R3A Sept 2006 Low Flow	W024	15.9	3	9080 Ae	0.00	0.00	No	Upriver
9/13/2006	Upriver	R3A Sept 2006 Low Flow	W024	15.9	3 T	9080 Ae	0.00	0.00	No	Upriver
9/13/2006	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	3	9080 Ae	0.00	0.00	No	Upriver
10/11/2006	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	4	11800 Ae	0.00	0.00	No	Study Area
10/11/2006	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	3	11800 Ae	0.00	0.00	No	Study Area
10/11/2006	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	2	11800 Ae	0.00	0.00	No	Upriver
10/11/2006	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	2	11800 Ae	0.00	0.00	No	Upriver
11/2/2006	Study Area	R3A Nov 2006 Stormwater-Influenced	W025M	2.0	5 J	13200 Ae	1.11	0.02	Yes	Study Area
11/2/2006	Study Area	R3A Nov 2006 Stormwater-Influenced	W025W	2.0	5 J	13200 Ae	1.11	0.02	Yes	Study Area
11/2/2006	Study Area	R3A Nov 2006 Stormwater-Influenced	W023M	10.9	4 J	13200 Ae	1.11	0.02	Yes	Study Area
11/2/2006	Study Area	R3A Nov 2006 Stormwater-Influenced	W023E	11	4 J	13200 Ae	1.11	0.02	Yes	Study Area
11/2/2006	Study Area	R3A Nov 2006 Stormwater-Influenced	W023W	11	1 UJ	13200 Ae	1.11	0.02	Yes	Study Area
11/3/2006	Study Area	R3A Nov 2006 Stormwater-Influenced	W025E	2.0	5 J	16300 Ae	0.30	1.11	Yes	Study Area
11/3/2006	Study Area	R3A Nov 2006 Stormwater-Influenced	W029	4.4	6 J	16300 Ae	0.30	1.11	Yes	Study Area
11/3/2006	Study Area	R3A Nov 2006 Stormwater-Influenced	W029	4.4	5 J	16300 Ae	0.30	1.11	Yes	Study Area
11/3/2006	Study Area	R3A Nov 2006 Stormwater-Influenced	W011	6.3	5 J	16300 Ae	0.30	1.11	Yes	Study Area
11/3/2006	Study Area	R3A Nov 2006 Stormwater-Influenced	W011	6.3	3 J	16300 Ae	0.30	1.11	Yes	Study Area
11/3/2006	Study Area	R3A Nov 2006 Stormwater-Influenced	W033	7.0	4 J	16300 Ae	0.30	1.11	Yes	Study Area
11/3/2006	Study Area	R3A Nov 2006 Stormwater-Influenced	W033	7.0	6 J	16300 Ae	0.30	1.11	Yes	Study Area
11/3/2006	Study Area	R3A Nov 2006 Stormwater-Influenced	W033	7.0	6 J	16300 Ae	0.30	1.11	Yes	Study Area
11/3/2006	Study Area	R3A Nov 2006 Stormwater-Influenced	W033	7.0	6 J	16300 Ae	0.30	1.11	Yes	Study Area
11/3/2006	Upriver	R3A Nov 2006 Stormwater-Influenced	W024	15.9	5 J	16300 Ae	0.30	1.11	Yes	Upriver
11/3/2006	Upriver	R3A Nov 2006 Stormwater-Influenced	W024	15.9	5 J	16300 Ae	0.30	1.11	Yes	Upriver
11/4/2006	Study Area	R3A Nov 2006 Stormwater-Influenced	W026	2.1	7	20800 Ae	0.56	0.30	Yes	Study Area
11/4/2006	Study Area	R3A Nov 2006 Stormwater-Influenced	W026	2.1	4	20800 Ae	0.56	0.30	Yes	Study Area
11/4/2006	Multnomah Channel	R3A Nov 2006 Stormwater-Influenced	W027	2.9	4	20800 Ae	0.56	0.30	Yes	Study Area
11/4/2006	Multnomah Channel	R3A Nov 2006 Stormwater-Influenced	W027	2.9	3	20800 Ae	0.56	0.30	Yes	Study Area
11/4/2006	Study Area	R3A Nov 2006 Stormwater-Influenced	W028	3.6	4	20800 Ae	0.56	0.30	Yes	Study Area
11/4/2006	Study Area	R3A Nov 2006 Stormwater-Influenced	W028	3.6	4	20800 Ae	0.56	0.30	Yes	Study Area
11/4/2006	Study Area	R3A Nov 2006 Stormwater-Influenced	W005	3.9	6	20800 Ae	0.56	0.30	Yes	Study Area
11/4/2006	Study Area	R3A Nov 2006 Stormwater-Influenced	W005	3.9	6	20800 Ae	0.56	0.30	Yes	Study Area
11/4/2006	Study Area	R3A Nov 2006 Stormwater-Influenced	W030	5.5	4	20800 Ae	0.56	0.30	Yes	Study Area
11/4/2006	Study Area	R3A Nov 2006 Stormwater-Influenced	W030	5.5	2	20800 Ae	0.56	0.30	Yes	Study Area
11/4/2006	Study Area	R3A Nov 2006 Stormwater-Influenced	W034	7.5	3	20800 Ae	0.56	0.30	Yes	Study Area
11/4/2006	Study Area	R3A Nov 2006 Stormwater-Influenced	W034	7.5	4	20800 Ae	0.56	0.30	Yes	Study Area
11/4/2006	Study Area	R3A Nov 2006 Stormwater-Influenced	W036	8.6	4	20800 Ae	0.56	0.30	Yes	Study Area
11/4/2006	Study Area	R3A Nov 2006 Stormwater-Influenced	W036	8.6	5	20800 Ae	0.56	0.30	Yes	Study Area
11/5/2006	Study Area	R3A Nov 2006 Stormwater-Influenced	W031	6.1	2	32300 A	1.12	0.56	Yes	Study Area
11/5/2006	Study Area	R3A Nov 2006 Stormwater-Influenced	W031	6.1	4	32300 A	1.12	0.56	Yes	Study Area
11/5/2006	Study Area	R3A Nov 2006 Stormwater-Influenced	W032	6.7	4	32300 A	1.12	0.56	Yes	Study Area
11/5/2006	Study Area	R3A Nov 2006 Stormwater-Influenced	W032	6.7	3	32300 A	1.12	0.56	Yes	Study Area
11/5/2006	Study Area	R3A Nov 2006 Stormwater-Influenced	W035	8.5	5	32300 A	1.12	0.56	Yes	Study Area
11/5/2006	Study Area	R3A Nov 2006 Stormwater-Influenced	W035	8.5	3	32300 A	1.12	0.56	Yes	Study Area

Table 3.1-9. TSS Data and Associated Discharge and Precipitation Values.

Sample Date	Reach	Data Set	Location Name	River Mile	TSS (mg/L)	Q (cfs)	Precipitation on Day of Sampling	Precipitation on Day Prior to Sampling	Precipitation-influenced TSS? <sup>a</sup>	Upriver or Study Area
11/5/2006	Study Area	R3A Nov 2006 Stormwater-Influenced	W037	9.6	3	32300 A	1.12	0.56	Yes	Study Area
11/5/2006	Study Area	R3A Nov 2006 Stormwater-Influenced	W037	9.6	3	32300 A	1.12	0.56	Yes	Study Area
11/5/2006	Study Area	R3A Nov 2006 Stormwater-Influenced	W038	9.9	5	32300 A	1.12	0.56	Yes	Study Area
11/5/2006	Study Area	R3A Nov 2006 Stormwater-Influenced	W038	9.9	4	32300 A	1.12	0.56	Yes	Study Area
11/8/2006	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	53	99900 A	0.37	0.94	Yes	Study Area
11/8/2006	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	80	99900 A	0.37	0.94	Yes	Study Area
11/8/2006	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	154	99900 A	0.37	0.94	Yes	Upriver
11/8/2006	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	112	99900 A	0.37	0.94	Yes	Upriver
12/6/2006	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	7	38700 A	0.00	0.00	No	Study Area
12/6/2006	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	7	38700 A	0.00	0.00	No	Study Area
12/6/2006	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	6	38700 A	0.00	0.00	No	Upriver
12/6/2006	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	7	38700 A	0.00	0.00	No	Upriver
1/15/2007	Study Area	R3A Jan 2007 High Flow	W025M	2.0	12	61700 A	0.00	0.00	No	Study Area
1/15/2007	Study Area	R3A Jan 2007 High Flow	W023M	10.9	13	61700 A	0.00	0.00	No	Study Area
1/15/2007	Upriver	R3A Jan 2007 High Flow	W024	15.9	11 T	61700 A	0.00	0.00	No	Upriver
1/15/2007	Upriver	R3A Jan 2007 High Flow	W024	15.9	14 T	61700 A	0.00	0.00	No	Upriver
1/18/2007	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	9	46700 A	0.01	0.00	No	Study Area
1/18/2007	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	7	46700 A	0.01	0.00	No	Study Area
1/18/2007	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	9	46700 A	0.01	0.00	No	Upriver
1/18/2007	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	9	46700 A	0.01	0.00	No	Upriver
2/20/2007	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	13	58700 A	0.48	0.10	Yes	Study Area
2/20/2007	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	12	58700 A	0.48	0.10	Yes	Study Area
2/20/2007	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	17	58700 A	0.48	0.10	Yes	Upriver
2/20/2007	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	18	58700 A	0.48	0.10	Yes	Upriver
2/21/2007	Study Area	R3A Jan 2007 High Flow	W032	6.7	18	57200 A	0.11	0.48	Yes	Study Area
2/21/2007	Study Area	R3A Jan 2007 High Flow	W032	6.7	14	57200 A	0.11	0.48	Yes	Study Area
2/22/2007	Study Area	R3A Jan 2007 High Flow	W038	9.9	18	58900 A	0.10	0.11	Yes	Study Area
2/22/2007	Study Area	R3A Jan 2007 High Flow	W038	9.9	17	58900 A	0.10	0.11	Yes	Study Area
2/23/2007	Study Area	R3A Jan 2007 High Flow	W037	9.6	23	55900 A	0.04	0.10	No	Study Area
2/23/2007	Study Area	R3A Jan 2007 High Flow	W037	9.6	22	55900 A	0.04	0.10	No	Study Area
2/24/2007	Study Area	R3A Jan 2007 High Flow	W031	6.1	60	56400 A	0.49	0.04	Yes	Study Area
2/24/2007	Study Area	R3A Jan 2007 High Flow	W031	6.1	17	56400 A	0.49	0.04	Yes	Study Area
2/24/2007	Study Area	R3A Jan 2007 High Flow	W034	7.5	17	56400 A	0.49	0.04	Yes	Study Area
2/24/2007	Study Area	R3A Jan 2007 High Flow	W034	7.5	16	56400 A	0.49	0.04	Yes	Study Area
2/25/2007	Study Area	R3A Jan 2007 High Flow	W035	8.5	16	63100 A	0.28	0.49	Yes	Study Area
2/25/2007	Study Area	R3A Jan 2007 High Flow	W035	8.5	16	63100 A	0.28	0.49	Yes	Study Area
2/26/2007	Study Area	R3A Jan 2007 High Flow	W026	2.1	13	69400 A	0.13	0.28	Yes	Study Area
2/26/2007	Study Area	R3A Jan 2007 High Flow	W026	2.1	13	69400 A	0.13	0.28	Yes	Study Area
2/26/2007	Study Area	R3A Jan 2007 High Flow	W033	7.0	23	69400 A	0.13	0.28	Yes	Study Area
2/26/2007	Study Area	R3A Jan 2007 High Flow	W033	7.0	16	69400 A	0.13	0.28	Yes	Study Area
2/26/2007	Study Area	R3A Jan 2007 High Flow	W033	7.0	25	69400 A	0.13	0.28	Yes	Study Area
2/26/2007	Study Area	R3A Jan 2007 High Flow	W033	7.0	18	69400 A	0.13	0.28	Yes	Study Area
2/27/2007	Multnomah Channel	R3A Jan 2007 High Flow	W027	2.9	36	71700 A	0.22	0.13	Yes	Study Area
2/27/2007	Multnomah Channel	R3A Jan 2007 High Flow	W027	2.9	29	71700 A	0.22	0.13	Yes	Study Area
2/27/2007	Study Area	R3A Jan 2007 High Flow	W036	8.6	32	71700 A	0.22	0.13	Yes	Study Area

Table 3.1-9. TSS Data and Associated Discharge and Precipitation Values.

Sample Date	Reach	Data Set	Location Name	River Mile	TSS (mg/L)	Q (cfs)	Precipitation on Day of Sampling	Precipitation on Day Prior to Sampling	Precipitation-influenced TSS? <sup>a</sup>	Upriver or Study Area
2/27/2007	Study Area	R3A Jan 2007 High Flow	W036	8.6	30	71700 A	0.22	0.13	Yes	Study Area
3/1/2007	Study Area	R3A Jan 2007 High Flow	W028	3.6	20 J	62900 A	0.06	0.08	No	Study Area
3/1/2007	Study Area	R3A Jan 2007 High Flow	W028	3.6	18 J	62900 A	0.06	0.08	No	Study Area
3/1/2007	Study Area	R3A Jan 2007 High Flow	W030	5.5	20 J	62900 A	0.06	0.08	No	Study Area
3/1/2007	Study Area	R3A Jan 2007 High Flow	W030	5.5	19 J	62900 A	0.06	0.08	No	Study Area
3/1/2007	Study Area	R3A Jan 2007 High Flow	W011	6.3	22 J	62900 A	0.06	0.08	No	Study Area
3/1/2007	Study Area	R3A Jan 2007 High Flow	W011	6.3	18 J	62900 A	0.06	0.08	No	Study Area
3/2/2007	Study Area	R3A Jan 2007 High Flow	W023M	10.9	18	64300 A	0.41	0.06	Yes	Study Area
3/3/2007	Study Area	R3A Jan 2007 High Flow	W005	3.9	17	65000 A	0.03	0.41	Yes	Study Area
3/3/2007	Study Area	R3A Jan 2007 High Flow	W005	3.9	15	65000 A	0.03	0.41	Yes	Study Area
3/3/2007	Study Area	R3A Jan 2007 High Flow	W023E	11	16	65000 A	0.03	0.41	Yes	Study Area
3/4/2007	Study Area	R3A Jan 2007 High Flow	W023W	11	20	66200 A	0.00	0.03	No	Study Area
3/5/2007	Study Area	R3A Jan 2007 High Flow	W029	4.4	17	65300 A	0.00	0.00	No	Study Area
3/5/2007	Study Area	R3A Jan 2007 High Flow	W029	4.4	16	65300 A	0.00	0.00	No	Study Area
3/8/2007	Study Area	R3A Jan 2007 High Flow	W025E	2.0	9	54900 A	0.00	0.18	No	Study Area
3/9/2007	Study Area	R3A Jan 2007 High Flow	W025W	2.0	10	51800 A	0.07	0.00	No	Study Area
3/10/2007	Study Area	R3A Jan 2007 High Flow	W025M	2.0	9	51000 A	0.05	0.07	No	Study Area
3/14/2007	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	10	51900 A	0.01	0.00	No	Study Area
3/14/2007	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	8	51900 A	0.01	0.00	No	Study Area
3/14/2007	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	10	51900 A	0.01	0.00	No	Upriver
3/14/2007	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	11	51900 A	0.01	0.00	No	Upriver
4/4/2007	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	4	26200 A	0.00	0.01	No	Study Area
4/4/2007	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	4	26200 A	0.00	0.01	No	Study Area
4/4/2007	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	4	26200 A	0.00	0.01	No	Upriver
4/4/2007	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	6	26200 A	0.00	0.01	No	Upriver
5/2/2007	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	3	24700 A	0.54	0.12	Yes	Study Area
5/2/2007	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	3	24700 A	0.54	0.12	Yes	Study Area
5/2/2007	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	3	24700 A	0.54	0.12	Yes	Upriver
5/2/2007	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	3	24700 A	0.54	0.12	Yes	Upriver
6/6/2007	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	11	15000 Ae	0.00	0.39	Yes	Study Area
6/6/2007	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	4	15000 Ae	0.00	0.39	Yes	Study Area
6/6/2007	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	5	15000 Ae	0.00	0.39	Yes	Upriver
6/6/2007	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	4	15000 Ae	0.00	0.39	Yes	Upriver
7/11/2007	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	5	8060 Ae	0.00	0.00	No	Study Area
7/11/2007	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	5	8060 Ae	0.00	0.00	No	Study Area
7/11/2007	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	5	8060 Ae	0.00	0.00	No	Upriver
7/11/2007	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	3	8060 Ae	0.00	0.00	No	Upriver
8/8/2007	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	6	7480 Ae	0.00	0.00	No	Study Area
8/8/2007	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	6	7480 Ae	0.00	0.00	No	Study Area
8/8/2007	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	4	7480 Ae	0.00	0.00	No	Upriver
8/8/2007	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	3	7480 Ae	0.00	0.00	No	Upriver
9/6/2007	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	12	8140 Ae	0.00	0.00	No	Study Area
9/6/2007	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	6	8140 Ae	0.00	0.00	No	Study Area
9/6/2007	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	3	8140 Ae	0.00	0.00	No	Upriver
9/6/2007	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	3	8140 Ae	0.00	0.00	No	Upriver



Table 3.1-9. TSS Data and Associated Discharge and Precipitation Values.

Sample Date	Reach	Data Set	Location Name	River Mile	TSS (mg/L)	Q (cfs)	Precipitation on Day of Sampling	Precipitation on Day Prior to Sampling	Precipitation-influenced TSS? <sup>a</sup>	Upriver or Study Area
10/1/2007	Study Area	NW Natural	GSW-01	5.9	5	14100 0	0.07	0.61	Yes	Study Area
10/1/2007	Study Area	NW Natural	GSW-01	5.9	5 U	14100 0	0.07	0.61	Yes	Study Area
10/1/2007	Study Area	NW Natural	GSW-01	5.9	8	14100 0	0.07	0.61	Yes	Study Area
10/1/2007	Study Area	NW Natural	GSW-03	6.1	5	14100 0	0.07	0.61	Yes	Study Area
10/1/2007	Study Area	NW Natural	GSW-03	6.1	6	14100 0	0.07	0.61	Yes	Study Area
10/1/2007	Study Area	NW Natural	GSW-03	6.1	5	14100 0	0.07	0.61	Yes	Study Area
10/1/2007	Study Area	NW Natural	GSW-07	6.1	5	14100 0	0.07	0.61	Yes	Study Area
10/1/2007	Study Area	NW Natural	GSW-07	6.1	5 U	14100 0	0.07	0.61	Yes	Study Area
10/1/2007	Study Area	NW Natural	GSW-07	6.1	5 U	14100 0	0.07	0.61	Yes	Study Area
10/1/2007	Study Area	NW Natural	GSW-09	6.2	6	14100 0	0.07	0.61	Yes	Study Area
10/1/2007	Study Area	NW Natural	GSW-09	6.2	6	14100 0	0.07	0.61	Yes	Study Area
10/1/2007	Study Area	NW Natural	GSW-09	6.2	5	14100 0	0.07	0.61	Yes	Study Area
10/1/2007	Study Area	NW Natural	GSW-12	6.2	5 U	14100 0	0.07	0.61	Yes	Study Area
10/1/2007	Study Area	NW Natural	GSW-12	6.2	5	14100 0	0.07	0.61	Yes	Study Area
10/1/2007	Study Area	NW Natural	GSW-12	6.2	8	14100 0	0.07	0.61	Yes	Study Area
10/1/2007	Study Area	NW Natural	GSW-13	6.3	5 U	14100 0	0.07	0.61	Yes	Study Area
10/1/2007	Study Area	NW Natural	GSW-13	6.3	6	14100 0	0.07	0.61	Yes	Study Area
10/1/2007	Study Area	NW Natural	GSW-13	6.3	8	14100 0	0.07	0.61	Yes	Study Area
10/1/2007	Study Area	NW Natural	GSW-18	6.5	5 U	14100 0	0.07	0.61	Yes	Study Area
10/1/2007	Study Area	NW Natural	GSW-18	6.5	5	14100 0	0.07	0.61	Yes	Study Area
10/1/2007	Study Area	NW Natural	GSW-18	6.5	9	14100 0	0.07	0.61	Yes	Study Area
10/2/2007	Study Area	NW Natural	GSW-02	6.0	5 U	14400 0	0.21	0.07	Yes	Study Area
10/2/2007	Study Area	NW Natural	GSW-02	6.0	5 U	14400 0	0.21	0.07	Yes	Study Area
10/2/2007	Study Area	NW Natural	GSW-02	6.0	5 U	14400 0	0.21	0.07	Yes	Study Area
10/2/2007	Study Area	NW Natural	GSW-04	6.1	5 U	14400 0	0.21	0.07	Yes	Study Area
10/2/2007	Study Area	NW Natural	GSW-04	6.1	5 U	14400 0	0.21	0.07	Yes	Study Area
10/2/2007	Study Area	NW Natural	GSW-04	6.1	5	14400 0	0.21	0.07	Yes	Study Area
10/2/2007	Study Area	NW Natural	GSW-06	6.1	5 U	14400 0	0.21	0.07	Yes	Study Area
10/2/2007	Study Area	NW Natural	GSW-06	6.1	5 U	14400 0	0.21	0.07	Yes	Study Area
10/2/2007	Study Area	NW Natural	GSW-06	6.1	5 U	14400 0	0.21	0.07	Yes	Study Area
10/2/2007	Study Area	NW Natural	GSW-08	6.1	5 U	14400 0	0.21	0.07	Yes	Study Area
10/2/2007	Study Area	NW Natural	GSW-08	6.1	5 U	14400 0	0.21	0.07	Yes	Study Area
10/2/2007	Study Area	NW Natural	GSW-08	6.1	5 U	14400 0	0.21	0.07	Yes	Study Area
10/2/2007	Study Area	NW Natural	GSW-10	6.2	5 U	14400 0	0.21	0.07	Yes	Study Area
10/2/2007	Study Area	NW Natural	GSW-10	6.2	5 U	14400 0	0.21	0.07	Yes	Study Area
10/2/2007	Study Area	NW Natural	GSW-10	6.2	5 U	14400 0	0.21	0.07	Yes	Study Area
10/2/2007	Study Area	NW Natural	GSW-11	6.2	5 U	14400 0	0.21	0.07	Yes	Study Area
10/2/2007	Study Area	NW Natural	GSW-11	6.2	5	14400 0	0.21	0.07	Yes	Study Area
10/2/2007	Study Area	NW Natural	GSW-11	6.2	6	14400 0	0.21	0.07	Yes	Study Area
10/2/2007	Study Area	NW Natural	GSW-13	6.3	5 U	14400 0	0.21	0.07	Yes	Study Area
10/2/2007	Study Area	NW Natural	GSW-13	6.3	5 U	14400 0	0.21	0.07	Yes	Study Area
10/2/2007	Study Area	NW Natural	GSW-13	6.3	6	14400 0	0.21	0.07	Yes	Study Area
10/2/2007	Study Area	NW Natural	GSW-14	6.3	5 U	14400 0	0.21	0.07	Yes	Study Area
10/2/2007	Study Area	NW Natural	GSW-14	6.3	5 U	14400 0	0.21	0.07	Yes	Study Area
10/2/2007	Study Area	NW Natural	GSW-14	6.3	5 U	14400 0	0.21	0.07	Yes	Study Area

Table 3.1-9. TSS Data and Associated Discharge and Precipitation Values.

Sample Date	Reach	Data Set	Location Name	River Mile	TSS (mg/L)	Q (cfs)	Precipitation on Day of Sampling	Precipitation on Day Prior to Sampling	Precipitation-influenced TSS? <sup>a</sup>	Upriver or Study Area
10/2/2007	Study Area	NW Natural	GSW-15	6.4	5 U	14400 0	0.21	0.07	Yes	Study Area
10/2/2007	Study Area	NW Natural	GSW-15	6.4	5	14400 0	0.21	0.07	Yes	Study Area
10/2/2007	Study Area	NW Natural	GSW-15	6.4	5 U	14400 0	0.21	0.07	Yes	Study Area
10/2/2007	Study Area	NW Natural	GSW-20	6.7	5 U	14400 0	0.21	0.07	Yes	Study Area
10/2/2007	Study Area	NW Natural	GSW-20	6.7	5 U	14400 0	0.21	0.07	Yes	Study Area
10/2/2007	Study Area	NW Natural	GSW-20	6.7	5 U	14400 0	0.21	0.07	Yes	Study Area
10/3/2007	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	4	15000 0	0.47	0.21	Yes	Study Area
10/3/2007	Study Area	NW Natural	GSW-01	5.9	5 U	15000 0	0.47	0.21	Yes	Study Area
10/3/2007	Study Area	NW Natural	GSW-01	5.9	5 U	15000 0	0.47	0.21	Yes	Study Area
10/3/2007	Study Area	NW Natural	GSW-01	5.9	5 U	15000 0	0.47	0.21	Yes	Study Area
10/3/2007	Study Area	NW Natural	GSW-03	6.1	5 U	15000 0	0.47	0.21	Yes	Study Area
10/3/2007	Study Area	NW Natural	GSW-03	6.1	6	15000 0	0.47	0.21	Yes	Study Area
10/3/2007	Study Area	NW Natural	GSW-03	6.1	6	15000 0	0.47	0.21	Yes	Study Area
10/3/2007	Study Area	NW Natural	GSW-07	6.1	5	15000 0	0.47	0.21	Yes	Study Area
10/3/2007	Study Area	NW Natural	GSW-07	6.1	6	15000 0	0.47	0.21	Yes	Study Area
10/3/2007	Study Area	NW Natural	GSW-07	6.1	7	15000 0	0.47	0.21	Yes	Study Area
10/3/2007	Study Area	NW Natural	GSW-09	6.2	5 U	15000 0	0.47	0.21	Yes	Study Area
10/3/2007	Study Area	NW Natural	GSW-09	6.2	5	15000 0	0.47	0.21	Yes	Study Area
10/3/2007	Study Area	NW Natural	GSW-09	6.2	5 U	15000 0	0.47	0.21	Yes	Study Area
10/3/2007	Study Area	NW Natural	GSW-11	6.2	5 U	15000 0	0.47	0.21	Yes	Study Area
10/3/2007	Study Area	NW Natural	GSW-11	6.2	5	15000 0	0.47	0.21	Yes	Study Area
10/3/2007	Study Area	NW Natural	GSW-11	6.2	5 U	15000 0	0.47	0.21	Yes	Study Area
10/3/2007	Study Area	NW Natural	GSW-12	6.2	5 U	15000 0	0.47	0.21	Yes	Study Area
10/3/2007	Study Area	NW Natural	GSW-12	6.2	5 U	15000 0	0.47	0.21	Yes	Study Area
10/3/2007	Study Area	NW Natural	GSW-12	6.2	6	15000 0	0.47	0.21	Yes	Study Area
10/3/2007	Study Area	NW Natural	GSW-17	6.4	5 U	15000 0	0.47	0.21	Yes	Study Area
10/3/2007	Study Area	NW Natural	GSW-17	6.4	5 U	15000 0	0.47	0.21	Yes	Study Area
10/3/2007	Study Area	NW Natural	GSW-17	6.4	6	15000 0	0.47	0.21	Yes	Study Area
10/3/2007	Study Area	NW Natural	GSW-17	6.4	5 U	15000 0	0.47	0.21	Yes	Study Area
10/3/2007	Study Area	NW Natural	GSW-17	6.4	7	15000 0	0.47	0.21	Yes	Study Area
10/3/2007	Study Area	NW Natural	GSW-17	6.4	5	15000 0	0.47	0.21	Yes	Study Area
10/3/2007	Study Area	NW Natural	GSW-20	6.7	5 U	15000 0	0.47	0.21	Yes	Study Area
10/3/2007	Study Area	NW Natural	GSW-20	6.7	5 U	15000 0	0.47	0.21	Yes	Study Area
10/3/2007	Study Area	NW Natural	GSW-20	6.7	7	15000 0	0.47	0.21	Yes	Study Area
10/3/2007	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	4	15000 0	0.47	0.21	Yes	Study Area
10/3/2007	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	3	15000 0	0.47	0.21	Yes	Upriver
10/3/2007	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	4	15000 0	0.47	0.21	Yes	Upriver
10/4/2007	Study Area	NW Natural	GSW-02	6.0	5 U	14400 0	0.10	0.47	Yes	Study Area
10/4/2007	Study Area	NW Natural	GSW-02	6.0	5 U	14400 0	0.10	0.47	Yes	Study Area
10/4/2007	Study Area	NW Natural	GSW-02	6.0	5	14400 0	0.10	0.47	Yes	Study Area
10/4/2007	Study Area	NW Natural	GSW-04	6.1	5 U	14400 0	0.10	0.47	Yes	Study Area
10/4/2007	Study Area	NW Natural	GSW-04	6.1	5 U	14400 0	0.10	0.47	Yes	Study Area
10/4/2007	Study Area	NW Natural	GSW-04	6.1	6	14400 0	0.10	0.47	Yes	Study Area
10/4/2007	Study Area	NW Natural	GSW-04	6.1	5 U	14400 0	0.10	0.47	Yes	Study Area
10/4/2007	Study Area	NW Natural	GSW-04	6.1	7	14400 0	0.10	0.47	Yes	Study Area

Table 3.1-9. TSS Data and Associated Discharge and Precipitation Values.

Sample Date	Reach	Data Set	Location Name	River Mile	TSS (mg/L)	Q (cfs)	Precipitation on Day of Sampling	Precipitation on Day Prior to Sampling	Precipitation-influenced TSS? <sup>a</sup>	Upriver or Study Area
10/4/2007	Study Area	NW Natural	GSW-04	6.1	5 U	14400 0	0.10	0.47	Yes	Study Area
10/4/2007	Study Area	NW Natural	GSW-05	6.1	5 U	14400 0	0.10	0.47	Yes	Study Area
10/4/2007	Study Area	NW Natural	GSW-05	6.1	6	14400 0	0.10	0.47	Yes	Study Area
10/4/2007	Study Area	NW Natural	GSW-05	6.1	5	14400 0	0.10	0.47	Yes	Study Area
10/4/2007	Study Area	NW Natural	GSW-06	6.1	5	14400 0	0.10	0.47	Yes	Study Area
10/4/2007	Study Area	NW Natural	GSW-06	6.1	6	14400 0	0.10	0.47	Yes	Study Area
10/4/2007	Study Area	NW Natural	GSW-06	6.1	8	14400 0	0.10	0.47	Yes	Study Area
10/4/2007	Study Area	NW Natural	GSW-08	6.1	5 U	14400 0	0.10	0.47	Yes	Study Area
10/4/2007	Study Area	NW Natural	GSW-08	6.1	5	14400 0	0.10	0.47	Yes	Study Area
10/4/2007	Study Area	NW Natural	GSW-08	6.1	7	14400 0	0.10	0.47	Yes	Study Area
10/4/2007	Study Area	NW Natural	GS-C7	6.4	6	14400 0	0.10	0.47	Yes	Study Area
10/4/2007	Study Area	NW Natural	GS-C7	6.4	8	14400 0	0.10	0.47	Yes	Study Area
10/4/2007	Study Area	NW Natural	GS-D5	6.4	8	14400 0	0.10	0.47	Yes	Study Area
10/4/2007	Study Area	NW Natural	GSW-15	6.4	5 U	14400 0	0.10	0.47	Yes	Study Area
10/4/2007	Study Area	NW Natural	GSW-15	6.4	6	14400 0	0.10	0.47	Yes	Study Area
10/4/2007	Study Area	NW Natural	GSW-15	6.4	6	14400 0	0.10	0.47	Yes	Study Area
10/4/2007	Study Area	NW Natural	GSW-16	6.4	5 U	14400 0	0.10	0.47	Yes	Study Area
10/4/2007	Study Area	NW Natural	GSW-16	6.4	5 U	14400 0	0.10	0.47	Yes	Study Area
10/4/2007	Study Area	NW Natural	GSW-16	6.4	7	14400 0	0.10	0.47	Yes	Study Area
10/4/2007	Study Area	NW Natural	GSW-20	6.7	5 U	14400 0	0.10	0.47	Yes	Study Area
10/4/2007	Study Area	NW Natural	GSW-20	6.7	5	14400 0	0.10	0.47	Yes	Study Area
10/4/2007	Study Area	NW Natural	GSW-20	6.7	9	14400 0	0.10	0.47	Yes	Study Area
10/5/2007	Study Area	NW Natural	GSW-01	5.9	5 U	14000 0	0.00	0.10	No	Study Area
10/5/2007	Study Area	NW Natural	GSW-01	5.9	5 U	14000 0	0.00	0.10	No	Study Area
10/5/2007	Study Area	NW Natural	GSW-01	5.9	5	14000 0	0.00	0.10	No	Study Area
10/5/2007	Study Area	NW Natural	GSW-03	6.1	5 U	14000 0	0.00	0.10	No	Study Area
10/5/2007	Study Area	NW Natural	GSW-03	6.1	5 U	14000 0	0.00	0.10	No	Study Area
10/5/2007	Study Area	NW Natural	GSW-03	6.1	6	14000 0	0.00	0.10	No	Study Area
10/5/2007	Study Area	NW Natural	GSW-05	6.1	5 U	14000 0	0.00	0.10	No	Study Area
10/5/2007	Study Area	NW Natural	GSW-05	6.1	6	14000 0	0.00	0.10	No	Study Area
10/5/2007	Study Area	NW Natural	GSW-05	6.1	6	14000 0	0.00	0.10	No	Study Area
10/5/2007	Study Area	NW Natural	GSW-07	6.1	5 U	14000 0	0.00	0.10	No	Study Area
10/5/2007	Study Area	NW Natural	GSW-07	6.1	5	14000 0	0.00	0.10	No	Study Area
10/5/2007	Study Area	NW Natural	GSW-07	6.1	6	14000 0	0.00	0.10	No	Study Area
10/5/2007	Study Area	NW Natural	GSW-10	6.2	5 U	14000 0	0.00	0.10	No	Study Area
10/5/2007	Study Area	NW Natural	GSW-10	6.2	6	14000 0	0.00	0.10	No	Study Area
10/5/2007	Study Area	NW Natural	GSW-10	6.2	6	14000 0	0.00	0.10	No	Study Area
10/5/2007	Study Area	NW Natural	GSW-12	6.2	5	14000 0	0.00	0.10	No	Study Area
10/5/2007	Study Area	NW Natural	GSW-12	6.2	5 U	14000 0	0.00	0.10	No	Study Area
10/5/2007	Study Area	NW Natural	GSW-12	6.2	6	14000 0	0.00	0.10	No	Study Area
10/5/2007	Study Area	NW Natural	GSW-13	6.3	5 U	14000 0	0.00	0.10	No	Study Area
10/5/2007	Study Area	NW Natural	GSW-13	6.3	6	14000 0	0.00	0.10	No	Study Area
10/5/2007	Study Area	NW Natural	GSW-13	6.3	6	14000 0	0.00	0.10	No	Study Area
10/5/2007	Study Area	NW Natural	GSW-14	6.3	5 U	14000 0	0.00	0.10	No	Study Area
10/5/2007	Study Area	NW Natural	GSW-14	6.3	5 U	14000 0	0.00	0.10	No	Study Area

Table 3.1-9. TSS Data and Associated Discharge and Precipitation Values.

Sample Date	Reach	Data Set	Location Name	River Mile	TSS (mg/L)	Q (cfs)	Precipitation on Day of Sampling	Precipitation on Day Prior to Sampling	Precipitation-influenced TSS? <sup>a</sup>	Upriver or Study Area
10/5/2007	Study Area	NW Natural	GSW-14	6.3	5	14000 0	0.00	0.10	No	Study Area
10/5/2007	Study Area	NW Natural	GS-B7	6.4	6	14000 0	0.00	0.10	No	Study Area
10/5/2007	Study Area	NW Natural	GS-B7	6.4	5 U	14000 0	0.00	0.10	No	Study Area
10/5/2007	Study Area	NW Natural	GS-C7	6.4	5 U	14000 0	0.00	0.10	No	Study Area
10/5/2007	Study Area	NW Natural	GS-C7	6.4	8	14000 0	0.00	0.10	No	Study Area
10/5/2007	Study Area	NW Natural	GS-D5	6.4	5 U	14000 0	0.00	0.10	No	Study Area
10/5/2007	Study Area	NW Natural	GS-D5	6.4	6	14000 0	0.00	0.10	No	Study Area
10/5/2007	Study Area	NW Natural	GSW-18	6.5	5 U	14000 0	0.00	0.10	No	Study Area
10/5/2007	Study Area	NW Natural	GSW-18	6.5	5 U	14000 0	0.00	0.10	No	Study Area
10/5/2007	Study Area	NW Natural	GSW-18	6.5	6	14000 0	0.00	0.10	No	Study Area
10/5/2007	Study Area	NW Natural	GSW-19	6.7	6	14000 0	0.00	0.10	No	Study Area
10/5/2007	Study Area	NW Natural	GSW-19	6.7	5 U	14000 0	0.00	0.10	No	Study Area
10/5/2007	Study Area	NW Natural	GSW-19	6.7	5	14000 0	0.00	0.10	No	Study Area
10/5/2007	Study Area	NW Natural	GSW-19	6.7	6	14000 0	0.00	0.10	No	Study Area
10/5/2007	Study Area	NW Natural	GSW-19	6.7	6	14000 0	0.00	0.10	No	Study Area
10/5/2007	Study Area	NW Natural	GSW-19	6.7	5	14000 0	0.00	0.10	No	Study Area
10/6/2007	Study Area	NW Natural	GS-B7	6.4	6	14500 0	0.01	0.00	No	Study Area
10/6/2007	Study Area	NW Natural	GS-C7	6.4	5	14500 0	0.01	0.00	No	Study Area
10/6/2007	Study Area	NW Natural	GS-D5	6.4	5 U	14500 0	0.01	0.00	No	Study Area
10/8/2007	Study Area	NW Natural	GSW-05	6.1	5 U	11500 0	0.00	0.17	No	Study Area
10/8/2007	Study Area	NW Natural	GSW-05	6.1	5 U	11500 0	0.00	0.17	No	Study Area
10/8/2007	Study Area	NW Natural	GSW-05	6.1	5 U	11500 0	0.00	0.17	No	Study Area
10/8/2007	Study Area	NW Natural	GSW-06	6.1	5 U	11500 0	0.00	0.17	No	Study Area
10/8/2007	Study Area	NW Natural	GSW-06	6.1	5 U	11500 0	0.00	0.17	No	Study Area
10/8/2007	Study Area	NW Natural	GSW-06	6.1	5 U	11500 0	0.00	0.17	No	Study Area
10/8/2007	Study Area	NW Natural	GSW-08	6.1	5 U	11500 0	0.00	0.17	No	Study Area
10/8/2007	Study Area	NW Natural	GSW-08	6.1	5 U	11500 0	0.00	0.17	No	Study Area
10/8/2007	Study Area	NW Natural	GSW-08	6.1	5 U	11500 0	0.00	0.17	No	Study Area
10/8/2007	Study Area	NW Natural	GSW-09	6.2	6	11500 0	0.00	0.17	No	Study Area
10/8/2007	Study Area	NW Natural	GSW-09	6.2	7	11500 0	0.00	0.17	No	Study Area
10/8/2007	Study Area	NW Natural	GSW-09	6.2	14	11500 0	0.00	0.17	No	Study Area
10/8/2007	Study Area	NW Natural	GSW-10	6.2	5	11500 0	0.00	0.17	No	Study Area
10/8/2007	Study Area	NW Natural	GSW-10	6.2	5 U	11500 0	0.00	0.17	No	Study Area
10/8/2007	Study Area	NW Natural	GSW-10	6.2	8	11500 0	0.00	0.17	No	Study Area
10/8/2007	Study Area	NW Natural	GSW-11	6.2	5 U	11500 0	0.00	0.17	No	Study Area
10/8/2007	Study Area	NW Natural	GSW-11	6.2	5	11500 0	0.00	0.17	No	Study Area
10/8/2007	Study Area	NW Natural	GSW-11	6.2	8	11500 0	0.00	0.17	No	Study Area
10/8/2007	Study Area	NW Natural	GSW-14	6.3	5	11500 0	0.00	0.17	No	Study Area
10/8/2007	Study Area	NW Natural	GSW-14	6.3	6	11500 0	0.00	0.17	No	Study Area
10/8/2007	Study Area	NW Natural	GSW-14	6.3	5 U	11500 0	0.00	0.17	No	Study Area
10/8/2007	Study Area	NW Natural	GSW-15	6.4	6	11500 0	0.00	0.17	No	Study Area
10/8/2007	Study Area	NW Natural	GSW-15	6.4	6	11500 0	0.00	0.17	No	Study Area
10/8/2007	Study Area	NW Natural	GSW-15	6.4	7	11500 0	0.00	0.17	No	Study Area
10/8/2007	Study Area	NW Natural	GSW-16	6.4	6	11500 0	0.00	0.17	No	Study Area
10/8/2007	Study Area	NW Natural	GSW-16	6.4	5 U	11500 0	0.00	0.17	No	Study Area

Table 3.1-9. TSS Data and Associated Discharge and Precipitation Values.

Sample Date	Reach	Data Set	Location Name	River Mile	TSS (mg/L)	Q (cfs)	Precipitation on Day of Sampling	Precipitation on Day Prior to Sampling	Precipitation-influenced TSS? <sup>a</sup>	Upriver or Study Area
10/8/2007	Study Area	NW Natural	GSW-16	6.4	5 U	11500 0	0.00	0.17	No	Study Area
10/8/2007	Study Area	NW Natural	GSW-16	6.4	5	11500 0	0.00	0.17	No	Study Area
10/8/2007	Study Area	NW Natural	GSW-16	6.4	6	11500 0	0.00	0.17	No	Study Area
10/8/2007	Study Area	NW Natural	GSW-16	6.4	8	11500 0	0.00	0.17	No	Study Area
10/8/2007	Study Area	NW Natural	GSW-18	6.5	5	11500 0	0.00	0.17	No	Study Area
10/8/2007	Study Area	NW Natural	GSW-18	6.5	5 U	11500 0	0.00	0.17	No	Study Area
10/8/2007	Study Area	NW Natural	GSW-18	6.5	8	11500 0	0.00	0.17	No	Study Area
10/9/2007	Study Area	NW Natural	GSW-02	6.0	5	10700 0	0.03	0.00	No	Study Area
10/9/2007	Study Area	NW Natural	GSW-02	6.0	5 U	10700 0	0.03	0.00	No	Study Area
10/9/2007	Study Area	NW Natural	GSW-02	6.0	6	10700 0	0.03	0.00	No	Study Area
10/9/2007	Study Area	NW Natural	GSW-17	6.4	6	10700 0	0.03	0.00	No	Study Area
10/9/2007	Study Area	NW Natural	GSW-17	6.4	5 U	10700 0	0.03	0.00	No	Study Area
10/9/2007	Study Area	NW Natural	GSW-17	6.4	5 U	10700 0	0.03	0.00	No	Study Area
10/9/2007	Study Area	NW Natural	GSW-19	6.7	5 U	10700 0	0.03	0.00	No	Study Area
10/9/2007	Study Area	NW Natural	GSW-19	6.7	5 U	10700 0	0.03	0.00	No	Study Area
10/9/2007	Study Area	NW Natural	GSW-19	6.7	5 U	10700 0	0.03	0.00	No	Study Area
11/7/2007	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	4	10800 0	0.00	0.00	No	Study Area
11/7/2007	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	4	10800 0	0.00	0.00	No	Study Area
11/7/2007	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	4	10800 0	0.00	0.00	No	Upriver
11/7/2007	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	2	10800 0	0.00	0.00	No	Upriver
12/12/2007	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	11	48500 P	0.00	0.00	No	Study Area
12/12/2007	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	12	48500 P	0.00	0.00	No	Study Area
12/12/2007	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	12	48500 P	0.00	0.00	No	Upriver
12/12/2007	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	15	48500 P	0.00	0.00	No	Upriver
1/9/2008	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	16	92400 P	0.19	0.60	Yes	Study Area
1/9/2008	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	17	92400 P	0.19	0.60	Yes	Study Area
1/9/2008	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	20	92400 P	0.19	0.60	Yes	Upriver
1/9/2008	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	18	92400 P	0.19	0.60	Yes	Upriver
2/6/2008	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	13	62900 P	0.66	0.12	Yes	Study Area
2/6/2008	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	13	62900 P	0.66	0.12	Yes	Study Area
2/6/2008	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	14	62900 P	0.66	0.12	Yes	Upriver
2/6/2008	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	15	62900 P	0.66	0.12	Yes	Upriver
3/5/2008	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	5	26200 P	0.00	0.01	No	Study Area
3/5/2008	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	4	26200 P	0.00	0.01	No	Study Area
3/5/2008	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	4	26200 P	0.00	0.01	No	Upriver
3/5/2008	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	3	26200 P	0.00	0.01	No	Upriver
4/3/2008	Downstream	City of Portland	SOUTH KELLY POINT PARK	1.1	5	32000 P	0.00	0.00	No	Study Area
4/3/2008	Study Area	City of Portland	ST JOHNS RR BRIDGE	6.8	6	32000 P	0.00	0.00	No	Study Area
4/3/2008	Downtown Reach	City of Portland	MORRISON ST BRIDGE	12.7	4	32000 P	0.00	0.00	No	Upriver
4/3/2008	Upriver	City of Portland	WAVERLY COUNTRY CLUB	17.9	4	32000 P	0.00	0.00	No	Upriver

Notes:

<sup>a</sup> For the purposes of this evaluation, TSS samples associated with rainfall totals of 0.2 inch or more summed over the day the TSS samples were collected and the day prior were flagged as potentially influenced by rainfall.

Table 3.1-9. TSS Data and Associated Discharge and Precipitation Values.

Sample Date	Reach	Data Set	Location Name	River Mile	TSS (mg/L)	Q (cfs)	Precipitation on Day of Sampling	Precipitation on Day Prior to Sampling	Precipitation-influenced TSS? <sup>a</sup>	Upriver or Study Area
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Reason codes for qualifiers:

- e - Discharge value has been estimated.
- J - The associated numerical value is an estimated quantity.
- P - Provisional data subject to revision.
- U - The material was analyzed for, but was not detected. The associated numerical value is the sample quantitation limit.

Reason codes for descriptors:

- A - Approved for publication, processing and review completed.
- T - The associated numerical value was mathematically derived (e.g., calculating the average of multiple results for a single analyte).

TSS - total suspended solids

Table 3.1-10. TSS Grain Size Distribution throughout Portland Harbor Study Area.

Location	Station	Maximum Grain Sizes per Station		
		d10 (µm)	d50 (µm)	d90 (µm)
RM 2 West Side	HMV01	4.28	25.76	204.36
RM 6.3 East Side	HMV02	4.1	40.66	274.53
RM 11 West Side	HMV03	3.32	35.28	242.34
RM 11 Mid-Channel	HMV04	2.98	32.11	242.91
RM 18 Mid-Channel	HMV05	3.78	79.3	383.11

**Notes:**

d10, d50, d90 = diameter of the 10th, 50th, and 90th percentiles of the grain size distribution.

Table 3.1-11. Summary of Sediment Transport Characteristics, RM 0 - 26.

Reach ID	RMs	Estimated Average Cross-Sectional Area	Bathymetric Change 2001-2009 <sup>a</sup>	Average Bed Shear (high flow)	Percentage Fine-Grained Surface Sediment Area <sup>b</sup>
Upriver	15.3 - 26	NA	NA	5.8 N/m <sup>2</sup>	NA
Downtown Reach	11.8 - 15.3	34,000	Net deepening in areas of the main channel, primarily ≤ 30 cm ft; no change or small-scale deepening dominant in nearshore areas, primarily ≤30 cm; some limited nearshore depositional areas.	3.4 N/m <sup>2</sup>	NA
Study Area	10 - 11.8	49,000	Nearly equal proportion of small scale deepening, shallowing, and no-change portions in nearshore area. Predominantly minor net deepening ≤30 cm in the channel. Several feet of deposition in the deep areas (dredged holes/borrow pits) on western side of channel.	5.0 N/m <sup>2</sup>	46
Study Area	9.2 - 10	63,000	A broad western portion of the channel shows widespread net deposition ranging from 60 to 150 cm. Areas of no change and scour occur along the eastern portion of the channel and nearshore area.	2.7 N/m <sup>2</sup>	54
Study Area	6.9 - 9.2	68,000	Majority of reach is depositional. Some areas, e.g., center of channel from RM 6.9 to 7.7, Swan Island Lagoon, show little or no change. Deepening/scour due to anthropogenic factors such as dredging and propwash is evident in some berthing areas.	1.7 N/m <sup>2</sup> <sup>c</sup> 0.5 N/m <sup>2</sup> (Swan Island Lagoon)	60
Study Area	5.0 - 6.9	57,000	Mosaic of no change, net deepening (≤30 cm), and shoaling (low lying areas) in the channel. Sand wave migration evident in the channel from RM 5 to 6. Eastern nearshore generally shows scour; western nearshore sediment accumulation.	4.2 N/m <sup>2</sup>	41



Table 3.1-11. Summary of Sediment Transport Characteristics, RM 0 - 26.

Reach ID	RMs	Estimated Average Cross-Sectional Area	Bathymetric Change 2001-2009 <sup>a</sup>	Average Bed Shear (high flow)	Percentage Fine-Grained Surface Sediment Area <sup>b</sup>
Study Area	3.0 - 5.0	65,000	Main channel area shows widespread net sediment accumulation, mostly small-scale ( $\leq 30$ cm), but more significant accumulation along the east and west channel margins. Deepening in some nearshore areas appears to be due to anthropogenic factors such as dredging and propwash.	1.4 N/m <sup>2</sup>	53
Study Area	1.9 - 3.0	68,000	Widespread shoaling up to and exceeding 60 cm in extent in channel and broad eastern nearshore area. Little or no riverbed elevation change west of the channel line.	0.7 N/m <sup>2</sup>	57
Downstream	0.0 - 1.9	70,000	Some minor shoaling in channel and east of channel to RM 1; apparently natural deepening (to 60 cm) along western shoreline; more dynamic from RM 0 to 1.	1 N/m <sup>2</sup>	50

**Notes:**

<sup>a</sup> Descriptions based on visual examination of 2002-2009 bathymetric change data shown on Map 3.1-6.

<sup>b</sup> Estimated based on silt and clay content from grain-size data in the RI data set.

<sup>c</sup> Outside of Swan Island Lagoon.

NA - not available

RM - river mile

Table 3.2-1. Historical Overwater Features and Fill Placement.

Site Name and ECSI Number	River Mile	River Bank	Major Industrial Operations <sup>a</sup>	Overwater Activities <sup>a,b,c</sup>		Fill <sup>a,c</sup>
				Historical	Current	
Evrast Oregon Steel Mills #141	2.2	E	Current: manufacturing of carbon steel coils, plates and pipe.	Prior to current ownership, pipe mounted on a trestle was used by the War Shipping Administration, and possible later operators, to convey bilge water from river barges, tied up to prior dock, to the former sump. Current dock added by current owner in 1969. Leased dock for temporary moorage, unloaded ore slurry (via piping).	None	Fill soils (hydraulically placed dredged material) were placed in the area over an extended time from the 1940s through the 1960s. In the 1970s, EOSM did some filling of the riverbank area of the property, using soil from the site, imported soil, dredge material and slag generated from its processes. Three artificial fill units are present in near-surface soils: 1) soils (sand and silt) used to construct the berm at the top of the shoreline riverbank, 2) a surficial layer of slag-soil fill, and 3) older dredge-fill (predominantly sand and silty sand) used to achieve development grades for the site prior to industrial manufacturing operations. The slag-soil deposits cover a majority of the upland EOSM plant area and are typically 2 to 6 ft thick; however, along the riverbank area, the slag-soil unit appears to be wedge-shaped, with a maximum thickness of approximately 12 ft that forms the cliff bank along the shoreline. The wedge configuration appears to be the result of historical placement of the slag-soil along the former shoreline bank.
Private Residences	2.2	W	NA	Dock added in 1957.	NA	NA
South Rivergate Industrial Park #2980	2.5	E	Current: JR Simplot - storage and distribution of urea and anhydrous ammonia; Union Chemical - manufacturer of adhesives and glues; Ash Grove Cement - manufacturer of calcium oxide; POP/Ft James - distribution of paper products; Douglas Walters/T&G Trucking/Online Roofing - container hauling, com'l/resid roofing; PGE - utility power line tower.	JR Simplot - Anhydrous ammonia, urea, and diesel fuel are transferred overwater; Ash Grove - overwater conveyor belt system for loading barges with lime products. One large dock added in 1966 off of present day Ash Grove Cement, one dock added in 1969 off of present day JR Simplot, and one dock added in 1969 off of present day Ft James/NW Service Center.		Ash Grove: from 1936 until 1956, the parcel was undeveloped and covered with dredged fill. From the 1950s to 1970s, dredge material was placed here from Post Office Bar and mouth of Willamette River.
Alder Creek Lumber Company #2446	2.9	Southern end of Sauvie Island	Lumber related activities (log storage, sawmill, lumber, planing).	Floating logs delivered to docks (1959 to present day).		In 1971, dredged material, obtained from the Multnomah Channel about 1,500 ft west of the southern tip of Sauvie Island, was placed on the bank of the Alder Creek property. In 1972, dredged material from the Georgia Pacific Linnton Fiber Terminal was also placed on the property, approximately 500 ft from Multnomah Channel.
PGE Harborton #2353	3.2	W	Electrical switchyard, easement of oil/gas pipelines, radio communication station, turbine power plant, two distillate fuel tanks, and storage of new and surplus equipment.	None.	None. Floating logs visible offshore on aerial photo (2000).	Sand and silt fill were hydraulically placed at the site in the early 1970s to depths ranging from 4 to 10 ft bgs. Perimeter dike constructed of silt fill materials. Fill source unknown.
Time Oil #170	3.4	E	Current: Terminal operations ceased in 2001 -- no current operations. Historical: petroleum products handling and storage, wood treatment products storage and formulation, waste oil storage.	Dock added in 1939. Dock used for the mooring of tanker ships while transferring petroleum products to pipelines located on the dock.	Dock still present, not used. Operations ceased in 2001.	Gravel fill covers portions of site within former terminal operations. It is assumed that dredged fill material was placed into this area around the turn of the 20th century, based on the similar practices along the river, but there is no documentation of the specific dates of this activity. In 1989 an excavated area in the former wood treatment area was backfilled with clean soil (fill source unknown).

Table 3.2-1. Historical Overwater Features and Fill Placement.

Site Name and ECSI Number	River Mile	River Bank	Major Industrial Operations <sup>a</sup>	Overwater Activities <sup>a,b,c</sup>		Fill <sup>a,c</sup>
				Historical	Current	
Premier Edible Oils #2013	3.6	E	Current: none. Historical: aboveground oil storage, manufacturing, packaging, and distribution of chemicals, metals, and metal products, edible oil processing and storage facility.	Three docks associated with operations at the PEO site since the early 1950s (dock added in 1957). A wooden dock and pilings were located in the slip from the 1950s until the early 1990s. A terminal associated with the Northwest Oil tank farm was also present on the Willamette, south of the existing terminal, until the early 1970s. A pipeline from the dock at PEO ran to the adjacent Time Oil Bell Terminal until 1973, when it was removed during construction, resulting in a documented release. By 1977, a large dock was built on the Willamette frontage, which was retrofitted and reconstructed through the years to accommodate operational needs of the facilities. PEO received edible oils for refining by ship.	None. Dock still present on Willamette River frontage, but not used.	The site was a marsh prior to 1941. The bottomlands were filled soon thereafter. The fill material (20-25 ft) has been described as medium-grained sand, most likely a combination of native sands and river dredge material.
Portland Container Repair (Burgard Industrial Park) #2375	3.6	E	Current: storage and repair of intermodal containers; Historical: WWII shipyard (1940s-1945, Oregon Shipbuilding Corp.), scrap metal storage	Site is upland only. Ship building (assembly) was conducted by the U.S. Maritime Commission and its contractor, Oregon Shipbuilding Corporation, in the shipways at the adjacent Schnitzer property. Ship-related equipment and parts were fabricated upland then transported by rail to shipways on the river (International Terminals Slip - Schnitzer Burgard Industrial Park).	None	During the WWII years, this property was <del>likely</del> part of the shipyard owned by the Oregon Shipbuilding Corporation. The International Terminals Slip was built during this time, and much of the Burgard Industrial Park's low-lying property was filled. From the 1960s into the early 1970s, shipways associated with the former shipyard were filled.
Noncontiguous Burgard Industrial Park Properties	3.7	E	Current: Boydston Metal Works - automotive trailer manufacturing and automotive parts storage; Morgan CFS - container unloading (lumber and building materials); Northwest Pipe - storage; Schnitzer Steel Remnant- storage. Historical: WWII shipbuilding.	Site is upland only. Ship building (assembly) was conducted by the U.S. Maritime Commission and its contractor, Oregon Shipbuilding Corporation, in the shipways at the adjacent Schnitzer property. Ship-related equipment and parts were fabricated upland then transported by rail to shipways on the river (International Terminals Slip - Schnitzer Burgard Industrial Park).	None	During WWII, the general site area was the location of a large shipyard owned by the Oregon Shipbuilding Corporation. The deep draft International Terminals Slip was created during this period, and much of the site was filled to address marshy, low-lying areas present on the site. In 1970, dredged sand was placed as fill at present day Boydston property.
Owens Corning #1036	3.8	W	Current: asphalt product production. Historical: wood product operations and wood treatment, solvent, lubricant, and fuel storage.	Dock added in 1985. Vessels delivered asphalt products to the site at the facility's dock from 1982 to 1987. Vessel activity and product transfer occurred on southern portion of site at location of former dock (removed in 1975).	One dock remains on site but no longer in use.	The fill material was identified as consisting mostly of sand with clay, silt, and gravel. The thickness of the fill ranges from 8 ft to at least 24 ft. Fill source unknown.
Northwest Pipe Company #138	4	E	Current: pipe manufacturing. Historical: pipe manufacturing and ship building (1937-1950, WWII years) at Oregon Shipbuilding Corp.	Site is upland only. Ship building (assembly) was conducted in the shipways at the adjacent Schnitzer property. Ship-related equipment and parts were fabricated upland then transported by rail to shipways on the river (International Terminals Slip - Schnitzer Burgard Industrial Park).	None	Fill materials were placed over the Schnitzer Burgard Industrial Park in the late 1930s and during the filling of the shipways in the 1960s and early 1970s. The depth of the dredge fill ranges from 2 ft to approximately 20 ft bgs.
Schnitzer-Calbag #2355	4	E	Current: metals recycling, truck maintenance and repair, warehousing; Historical: ship construction/shipyard activities (1941-1945, Oregon Shipbuilding Corp.), metals recycling, truck maintenance and repair, warehousing; upland log storage and log rafting; filling of shipways; grain storage, steel pipe and tank manufacturing.	From 1941 to 1945, ships commissioned by the U.S. Maritime Commission were assembled in the shipways and moored along the southern edge of the slip for outfitting. Interior mechanical and electrical features were installed and the deck painted. In 1945, a fire destroyed the dock and shops along the south side of the dock. Several ships were damaged, and cranes fell into the slip as the dock collapsed. In 1948 boat rails were added, and removed in 1969, as shown on historical photos. Between 1945 and 1972, industrial use was limited to the dismantling of the shipyard, filling of shipways associated with the former shipyard, and log rafting. Historical photos indicate that on river side, in 1978 and 1985, docks were added.	Scrap metal sometimes arrives at the SSI dock in the International Terminals Slip by barge. Bulk materials are loaded and off-loaded by using three dock-mounted cranes.	Prior to 1941, the property was largely undeveloped except for bulk petroleum storage in six aboveground storage tanks near the river owned by NW Oil Co. and NW Terminal Co., predecessors of Time Oil. The tanks were removed to make way for the shipyard. During WWII (1941-1945), the site was the location of a large shipyard owned by the Oregon Shipbuilding Corporation. The deep draft International Terminals Slip was created during this period, and portions of the marshy, low-lying areas on the site were filled. The shipways were filled in the later 1960s and early 1970s with dredged material. Thickness varies from 25 to 35 ft along the river to 15 ft on the eastern edge of the site.

Table 3.2-1. Historical Overwater Features and Fill Placement.

Site Name and ECSI Number	River Mile	River Bank	Major Industrial Operations <sup>a</sup>	Overwater Activities <sup>a,b,c</sup>		Fill <sup>a,c</sup>
				Historical	Current	
Port of Portland - Terminal 4, Slip 1 #2356	4.3	E	Current: grain mill, liquid bulk storage, storage and maintenance of equipment for loading and unloading ships, loading soda ash to ships, unloading from rail. Historical: marine terminal, bulk storage facilities (grain and liquid).	A dock existed as early as 1920. At Pier 1, grain was transported to and from berth using conveyor (1920-2003). Tri-calcium phosphate was also handled at Pier 1. Ore and other bulk raw products were handled at Pier 2 (1921-1996).  Berth 409 was removed in 1962. In June 1996, during the Pier 2 dismantling project, the dock structure at Berths 406 and 407 collapsed. The dock structure and berths were subsequently removed.	No current activities at Pier 1 (Berths 401 and 405). Currently, IRM handles urea ammonium nitrate (UAN, a fertilizer), at Berth 408.	In 1917, dredged fill material was deposited across the low-lying ground. Most of lower Gatton Slough was filled at that time. Fill was also placed into the offshore shallows to extend the riverbank out into the channel. In 1950s Slip 1 was dredged. A Slip 2 was planned and excavated but later filled. Fill materials typically consist of silty sand and sandy dredge material, with pockets of gravel, silt, clay, concrete, and wood debris.
Babcock #2361	4.4	W	Current: site leased to steel railroad materials storage. Historical: lumber storage and loading.	Historical loading and dock operations (dates unknown). No docks appear on current aerial photograph.	Docks not present in current aerial photograph. No known activities.	Varying thicknesses of fill up to approximately 25 ft. Fill consists of medium-grained sand and silt, source unknown.
Kinder Morgan Liquids Terminal - Linnton #1096	4.4	W	Refined petroleum products storage since 1918.	A dock existed as of 1936. The dock is infrequently used for loading and unloading of petroleum fuels through above-grade conveyance pipelines connecting the site dock to the ASTs. No petroleum storage occurs at or near the riverfront outside of the AST containment area.		Soils are composed of fill material from 1 to 35 ft bgs. The source of the fill (silt and sand) is likely from dredging activities on the Willamette and Columbia rivers.
RK Storage and Warehousing #2376 (Includes West Coast Adhesives #333)	4.5	W	Current: lumber storage and log loading. Historical: lumber storage and log loading, manufactured phenol-formaldehyde glues, and storage of railroad materials.	Dock associated with lumber handling demolished in 1957.	None	Mostly composed of fill. Between 1961 and 1980, aerial photographs show dumping and fill activities south of the West Coast Adhesives facility. Debris present in the fill consists of concrete, metal, fiberglass, and asphalt to a depth of 5 ft bgs. Fill source unknown.
Port of Portland Terminal 4, Slip 3 # 272	4.6	E	Current: loading soda ash at docks. Historical: oil supply docks for locomotives, loading soda ash, unloading pencil pitch, storage and unloading of bulk oil, import and export of ore and concentrate, unloading diesel, No. 6 fuel, and Bunker C oil and transferring via pipeline.	Oil dock in place by 1906. Other site docks existed as early as 1920. Bulk materials (including pencil pitch) and petroleum products unloaded and/or loaded at ships. Petroleum pipeline traversed Terminal 4. Pencil pitch (1978-1998), ammonium sulfate (1970), sodium sulfate, soybean meal, sulfur (1961-1967), lead and zinc concentrates (1961-1971), soda ash (1988-present), and alumina/bauxite and chromite (1963) were handled at Pier 4.	None at Slip 3 Upland Facility. Berths 410 and 411 along north side of Slip 3 used by Kinder Morgan Bulk Terminals. Ship loading of soda ash at Pier 4.	Approximately 10 to 30 ft of sandy fill was placed on the lowland area along the Willamette River circa 1920 to create Terminal 4. Site filled between 1917 and 1920 with material dredged from the river adjacent to the site and with material excavated to create the facility slips. Soil removed from the east bank of Slip 3 during cleanup activity in the 1990s was re-used to fill the excavation (non-impacted soils). Slip 3 was dredged in the teens to 1920s and widened in 1958.
Linnton Plywood Association #2373	4.7	W	Linnton Plywood: sawmill and lumber company, plywood manufacturing, and warehousing in plywood building. CRSG: sand barging and distribution.	Dock existed as of 1936. Raw logs stored along waterfront pilings until processing operations began at dock (cutting logs and loading onto conveyor).	Operations ceased at Linnton in 2001. Sand is delivered to the CRSG site by tug and barge.	The area leased to CRSG was once used for dredge material disposal from dredging the historic log processing area. The historic wigwam burner was also located on the CRSG site in the area used for dredge material placement. CRSG has since placed 10 ft of clean fill in this area. The air treatment system on the CRSG site captured solids from the sander dust burner, which were spread on the ground to dry and used as fill on this parcel. CRSG has since placed 10 ft of clean fill in this area. Currently, CRSG mixes the dust with the sand. Boring logs indicate fill material at least 24 ft thick in the above areas consisting primarily of silt and fine-to-medium-grained sand. The fill also includes burner ash, angular gravel, wood chips, and brick. Fill source unknown.
ARCO #1528	4.9	W	Current: petroleum storage and distribution. Historical: petroleum storage and distribution, foamite plant, toy manufacturing, lumber company.	Dock existed as of 1936. Fuel transfer activities conducted at site.	Fuel transfer facilities.	Recent fill (consisting of sand, sandy gravel and cobbles, and/or gravelly sand and containing some debris), source of material unknown.
Port of Portland - Terminal 4 (Auto Storage Facility) #172 #2642	5	E	Current: unloading, storing, and processing of new automobiles. Historical: unloading, storing, and processing of new automobiles; unloading of steel and export of lumber products on the northern third of the facility. The upper portion of Toyota Logistics Services' leasehold (their processing facility) is not included in the ESCI facility, but is located northeast of the facility along North Lombard Street.	In 1971 and 1974, docks were constructed. Unloading new automobiles and steel from ships. Throughout the 1990s lumber was loaded from the yard to ships.	Unloading new automobiles from ships.	In the 1950s, 1960s, and possibly the early 1970s, sand fill was used to bring the facility up to an elevation above the flood level. Fill is about 5 ft thick at the base of the bluff east of the facility and thickens to about 40 ft at the riverbank.

Table 3.2-1. Historical Overwater Features and Fill Placement.

Site Name and ECSI Number	River Mile	River Bank	Major Industrial Operations <sup>a</sup>	Overwater Activities <sup>a,b,c</sup>		Fill <sup>a,c</sup>
				Historical	Current	
Exxon Mobil #137	5.1	W	Petroleum storage and distribution.	Dock existed as of 1936. Fuel transfer activities conducted at site.		None
ST Services/Shore Terminals #1989	5.3	W	Bulk petroleum storage and marine terminal.	A dock (constructed in 1978) extends approximately 90 ft into the Willamette River from the site. The dock is used for the mooring of tanker ships while transferring petroleum products to pipelines located on the dock.		Fill placed upland in 1948. Fill material, consisting of sand and silt, was historically placed in the site vicinity on alluvial floodplain materials. Fill source unknown. Petroleum-hydrocarbon-impacted soils, resulting from the release of gasoline in 1988 and 1992, were excavated, aerated onsite, and ultimately used as fill in the excavations.
Foss Maritime/Brix Marine #2364	5.5	W	Current: marine vessel transportation services and maintenance. Historical: above and tugboat service and fueling.	Maintenance activities performed at the covered barge permanently moored at the facility dock.		Some infilling of the northeastern portion of the property occurred in 1948. Fill material was fine to medium sand (dredge fill).
Transloader International #2367	5.6	W	Current: unknown. Historical: store, sort and reship logs by land.	Aerial photographs from the early to mid-1960s show log rafts in the river adjacent to the site, but the source and duration of this activity cannot be determined. Offshore there are four dolphins and a 3-ft wide floating walkway. It is not known if these structures are completed.		The site was constructed on varying thicknesses of recent fill composed of fine to medium sands and silts.
Mar Com North (Brix DeArmond)	5.6	E	Current: unknown. Historical: mostly vacant, storage of abandoned ship repair equipment and excess parts (bone yard). Quonset hut on site used for storing ship repair material and timber. Stored, manufactured, and distributed timber and lumber products.	While Mar Com was in operation from ~1905 to 2004, a floating dry dock located at the adjacent Mar Com South Facility was used to conduct ship repairs, hull overhauls, and maintenance services (e.g., mechanical/electrical retrofits). Barges acted as support platforms relative to operations.		None
Mar Com South (Langley St. Johns)	5.7	E	Current: unknown. Historical: from ~1905 to 2004 site operated as a shipway, ship repair operations (maintenance, fabrication, electrical/mechanical repairs, storage). A sawmill occupied a portion of the site between the late 1940s and ~1990. For years (dates unknown), a portion of the property was leased for sandblasting and painting services during ship construction and repair.	Two marine ways for pulling ships up to 1,000 tons out of the water to the upland shipyard facilities. An offshore floating dry dock was also present and designed to sink down to allow ships as heavy as 4,000 tons to navigate into position prior to performing maintenance activities.	Unknown. Facility structures and equipment remain onsite, but all shipbuilding and repair activities have ceased.	Filling activities have occurred at the North Parcel from as far back as 1917 to at least 1983-1984. Fill encountered in test pits in 1986 included organics, silts and sands with variable amounts of concrete, wood and wood products, asphalt, plastic and glass. The fill material at the Mar Com and DSL sites originated from various sources. A substantial amount of fill (greater than 10,000 cubic yards) originating from excavation materials from the Veterans Hospital is documented to have been placed at the Mar Com and DSL sites. During the 1970s, sediments dredged from the river as part of maintenance operations were placed on the southern half of the North Parcel.
Marine Finance (Hendren Tow Boats) #2352	5.8	W	Current: tugboat business, houseboat/sailboat construction. Historical: above and metal salvage, moorage.	Overwater structures include a home builder's dock and a gangway and floating facilities owned by a tow boat company. Overwater activities have been prevalent at this site since the early 1920s when there was a ferry slip located here.		Fill materials had been placed on the South Parcel since approximately 1945. In 1987, the “knoll” at the south corner of the South Parcel was constructed using dredged sediment from the marine way area.
U.S. Moorings #1641	6	W	Government port, supply, repair facilities for dredge and other support vessels, warehousing facilities, fuel storage, motor pool garage and parking.	In 1963 a dock and floating structure were removed from the site. On the south end of the property a dock was constructed in 1936. Fueling of dredges, sandblasting, and vehicle maintenance occur at the site.	Docking facilities, maintenance, and overhaul to support the dredge fleet and the hydrographic survey vessels.	Between 1936 and 1948 the area was filled; the fill was likely obtained from private dredging operations. In 1961 material was excavated at the site. Artificial fill material was placed at the site during the 1930s and 1960s. The excavations and soil borings completed at the site indicate that the fill material underlying the site is approximately 9 to 30 ft thick. The fill material consists of road base material, brownish-gray, poorly graded, fine to medium sand and silty sand, and organic and construction debris.
City of Portland BES Water Pollution Control Laboratory #2452	6.1	E	Current: analytical lab. Historical: lumber mill operations, fruit box manufacturer, and original site of Terminal 3.	Lumber mill operations when dock present. Dock removed in 1979.	None	Dredge material from river used as fill upland (1914), and partial filling of new parcel in 1945.
						Pre-1970s fill that brought the site to the grade of the pavement for the Portland Lumber Mill. Early 1970s fill in the foundation of the Coast Veneer facility and along the bank of the river. Placement of “black sand” fill in the Coast Veneer area and in piles on the southern portion of the site. From 1988 to 1989, construction and other debris were disposed of in the southern and northwestern portions of the site. Black sand and debris were removed from the property during site development in the mid-1990s.

Table 3.2-1. Historical Overwater Features and Fill Placement.

Site Name and ECSI Number	River Mile	River Bank	Major Industrial Operations <sup>a</sup>	Overwater Activities <sup>a,b,c</sup>		Fill <sup>a,c</sup>
				Historical	Current	
Crawford Street Corporation #2363	6.1	W	Current: metal forging, steel recycling and distribution. Historical: above activities and lumber and sawmill.	None/Unknown	None/Unknown	Up to approximately 6 ft of black sand fill material was placed by previous property owners during the demolition of the former lumber mill building in 1977-1978. The sand had reportedly been obtained from a local sandblasting company and previously had been used to clean land- and ship-based oil tanks. Reported to have been transported to the beach fronting the property and into the Willamette River by riverbank erosion.
Gasco #84	6.2	W	Current: liquefied natural gas storage and distribution, solid and liquid coal tar pitch storage and distribution; northern portion - bulk fuel storage and distribution. Historical: oil manufactured gas plant, coal tar formulation, storage and distribution, electrode grade pitch manufacture and distribution.	A dock existed as of 1936 and a second dock was removed in 1957 (on the south end of the property). Fuel and Marine Marketing Inc. conducts overwater transfer of bulk petroleum from barge to their bulk storage facility. Koppers Industries (now Beazer East) conducts overwater transfer of heated liquid coal tar pitch from barge to their bulk storage facility.		Much of the Gasco property has been extensively filled through time, beginning with initial MGP site development activities between 1905 and 1913. Low-lying areas, primarily to the southeast (lampblack storage and tar pond area) received MGP by-product placement through time (1940, 1952 aerial photographs), and likely received soils from the excavation of the LNG tank containment basin at the central portion of the site in 1967 and 1968 (1968 aerial photograph). By 1975, the southern portion of the property was predominantly filled. Retention ponds were filled in 1981. The thickness of the surficial fill ranges from approximately 2 ft along the western portion of the site near the Tualatin Mountains, to a maximum of approximately 30 ft in the northern and eastern portions of the site, near the Willamette River. Much of the fill at the site, especially in the northwestern and central areas, was found to consist of poorly graded sands and silty sands that were likely hydraulically placed river-dredge material. Other areas of fill at the site were found to contain lampblack and/or pencil pitch material, solidified tars, oil, quarry reject rock, and building debris, which were incorporated into the fill when these areas were brought to current grade.
Siltronic #183	6.2	W	Current: manufactures silicon wafers from silicon crystal ingots. Historical: waste disposal area (waste effluent pond, 11-acre lagoon, disposal pit, spent oxide/lampblack disposal pile).	Tugboat refueling by former Western Transportation facility. In 1957 two docks were removed from the upstream end of the site.	None	By 1975, the site was covered with fill up to 30 ft thick in places. The fill consisted of former MGP process wastes, dredged material from Willamette River dredging operations, quarry rock, and potentially materials and wastes from other onsite and offsite sources. The southern portion of the site was filled to about 30 ft above MSL (current grade) between 1971 and 1977. The fill included quarry rock, Willamette River dredge material (which may or may not have included sediments impacted by direct discharge of wastes), and MGP waste from the PG&C facility.
Willamette Cove #2066	6.7	E	Current: vacant. Historical: plywood manufacturing plant (west parcel), structures to support ship repair on dry docks (central parcel) - U.S. Government facilitated during Great Depression and wars (WWI, WWII, and the Korean War), cooperage plant-manufactured wood vats, kegs, barrels, shingles (east parcel).	The central parcel of the Willamette Cove facility was used for ship repair on dry docks between 1903 and 1953. During wartime, U.S. Government contractors utilized the dry docks for military ship outfitting and repair. Dry docks were relocated in 1953. The plywood facility (West Parcel) and cooperage facility (East Parcel) were used for a variety of overwater activities associated with wood processing. The dock structure was removed between 1965 and 1969.	None	Sandy fill was placed on a strip of lowland adjacent to the bluff and outward into the Willamette River prior to and concurrent with facility development (completed by 1930). In early 1970s, filled the former log pond on the West Parcel. Fill source unknown. Debris in fill (bricks, metal, wood). Fill was placed on the upstream end of the site (in the head of the cove) in 1985.
McCormick and Baxter #74	7	E	Current: none. Historical: manufactured fir lumber and wood products treatment.	Historically, creosote was unloaded at a dock and transported to a large tank by pipeline. The facility was operational from 1944 to 1991. Unloading at the creosote dock was gradually phased out throughout the 1980s. A pier was removed in 1980 and the dock removed in 2000.	None	The site is located in an area that was filled in the early 1900s.
Arkema #398	7	W	NA	Dock removed in 1957.		Fill added in 1957.

Table 3.2-1. Historical Overwater Features and Fill Placement.

Site Name and ECSI Number	River Mile	River Bank	Major Industrial Operations <sup>a</sup>	Overwater Activities <sup>a,b,c</sup>		Fill <sup>a,c</sup>
				Historical	Current	
Arkema #398	7.3	W	Current: none. Historical: inorganic chemical manufacturing company from 1941 to 2001. Produced sodium chlorate and potassium chlorate, chlorine, sodium hydroxide, hydrogen gas, hydrochloric acid, and DDT.	Dock 1 was most likely constructed in 1941 and Dock 2 was constructed sometime between 1954 and 1959. The Salt Dock was under construction in 1962. Shipments of sodium chloride (salt) were historically delivered by ship to either the Salt Dock or Dock 1. Sodium hydroxide, sodium chlorate solution, and chlorine were loaded onto barges for shipment from Dock 2.	None. Dock structures still remain.	The eastern portion of the site generally between Docks 1 and 2 has been filled with plant debris consisting of asphalt, concrete, pipe, and clean soil, in addition to fill from the City of Portland and excavation contractors. The majority of the fill material between Docks 1 and 2 was placed between 1948 and the mid-1960s.
Triangle Park LLC - North Portland Yard #277	7.4	E	Current: vacant. Historical: wharf, shipbuilding (1921-1946), lumber manufacturing, sawmill, concrete, marine towing, construction and heavy equipment (Riedel International). Riedel also responded to chemical, industrial, and accidental spills of contaminants on the ground or in waterways. Equipment was stored and cleaned onsite. Between 1980 and 1984, the site included a regulated hazardous waste storage area.	Dock existed as of 1936. Docks associated with ship building, repair, and product transfer. In 1966 a dock and floating structure was removed.	A dock and dolphins are still present at the site, but the site is vacant. There is temporary barge moorage along the shoreline.	Fill was place on the downstream end of the property in 1974 and upstream in 1966. The fill blanketing the site extends to a depth of approximately 15 ft bgs and is composed predominantly of sand. Fill was used to create the dock and berth area.
Willbridge Terminals #1549	7.5	W	Bulk petroleum storage since early 1900s.	Dock existed as of 1936. Each of the three terminals, which compose the Willbridge Terminals site, have a marine dock for the loading and unloading of petroleum products to or from tankers, barges and tug boats.		Fill material of gravel, silt and sand was deposited over most of the site. The former Holbrook Slough that connected Kittridge Lake with the Willamette River was filled in the early 1900s. The source of the fill is primarily Willamette River dredging. There is relatively little fill in the KMLT terminal’s south tank yard, while there are significant fill areas on the rest of the site.
Willbridge Terminals (WMCSR-NWR-94-06) #2355	7.7	W	Current: distribution of refined petroleum products (gasoline, diesel fuel, lubricating oil), fuel storage.	Petroleum products have been loaded and unloaded at the terminal since the early 1900s.	Current marine docks (one at each facility - constructed by 1936) for loading and unloading petroleum products to or from tankers, barges, and tug boats.	Fill material of gravel, silt and sand has been deposited over most of the site. The source of the fill is primarily Willamette River dredging. The thickness of the fill material ranges from nonexistent to greater than 30 ft. There is relatively little fill in the KMLT terminal’s south tank yard, while there are significant fill areas on the rest of the site. The former Holbrook Slough that connected Kittridge Lake with the Willamette River was filled in the early 1900s. Fill material placed on downstream end of site from 1948-1957.
McCall Oil #134	7.9	W	Asphalt manufacturing and chemical manufacturing, storage and distribution.	A dock structure and an oil transfer pipeline historically were located at the McCall Oil site prior to filling in the late 1960s. Douglas Oil operated a marine dock at the northeastern portion of the site. This dock was added in 1975 and was used to transfer asphalt from moored barges to the asphalt facility via pipeline. The dock was later replaced by the existing dock located northeast of the terminal.	Petroleum products are received and dispensed at the marine dock.	In 1966, dredge materials from the Willamette River were added to the shoreline to create additional land.
US Coast Guard - Marine Safety Station #1338	8	E	Current: USCG marine safety and marine inspection offices. Historical: roofing shingle manufacturer, lumber company.	A dock was constructed in 1974. Activities unknown.	A fixed pier is located in the southwest corner of the property and is used as a dock and fueling platform for the buoy tender CGC Bluebell. Support activities include minor onboard ship repair and storage of ship equipment. A floating dock is located east of the fixed pier and is used for servicing and launching the smaller vessels.	The property was created by filling marshy lowlands in Mocks Bottom beginning in the late 1930s. Filling of Mocks Bottom was completed in 1974.
Fred Devine Diving and Salvage #2365	8.2	E	Current: moorage. Historical: moorage and waterfront structures (1940s), cleaner and solvent storage.	A dock was constructed in 1979 where fueling and loading/unloading activities occur.		None/not reported in CSM

Table 3.2-1. Historical Overwater Features and Fill Placement.

Site Name and ECSI Number	River Mile	River Bank	Major Industrial Operations <sup>a</sup>	Overwater Activities <sup>a,b,c</sup>		Fill <sup>a,c</sup>
				Historical	Current	
Front Avenue LP Properties #1239	8.2	W	Lumber facility/storage, concrete plant, pipe fittings manufacturing.	A dock was constructed in 1991. Ships deliver raw materials to facilities at the site (e.g., sand and aggregate to Glacier NW on Parcel 1).		Large portions of the site were formed by filling the riverbed and lake bed from 1887 through 1980. A large volume of fill was placed on Parcels 1 and 3 between the 1940s and the 1970s. The fill was made up of slag from a steel mill which began operating at the property in approximately 1942 (predecessor to Oregon Steel Mills), dredged material from the Willamette River, and construction debris. Fill is estimated to range from 15 to 45 ft thick on all but the northeastern third of the property.
Cascade General #271	8.4	E	Current: Cascade General - Ship repair yard and other industrial operations, POP - parking lot/undeveloped property. Historical: airport (1927-1941); shipbuilding facility (1942-1945); ship repair/industrial operations (1949-present). Between 1942 and 1949, the U.S. Maritime Commission leased Swan Island from the POP and contracted with the Kaiser Company to construct a shipyard and associated facilities. The shipyard facilities were used to build WWII T2 tanker ships. A Kaiser affiliate, Consolidated Builders, Inc., conducted ship dismantling between 1947 and 1949. After the war, the area was redeveloped and used for ship repair purposes by various ship repair contractors and their subcontractors. In addition, facilities were leased to a number of industrial tenants who conducted a range of activities, including steel fabrication and storage, wood products manufacturing, equipment manufacturing, maritime supply sales, printing, chemical and soap storage, war surplus storage, fire extinguisher service and storage, paint storage, aluminum oil tank manufacturing, service station operation, sheet metal work, roofing supply storage, and general office storage.	Shipways were constructed in the early 1940s and removed or abandoned in the late 1940s through 1962 for the installation of dry docks. Dry docks were installed on the downstream end of the site in 1945, 1953, 1962, and 1978. Boat rails were added in three areas (one added in 1948, the other two removed in 1957 and 1963 where docks were placed). Activities at the dry docks have included: ship dismantling, ship repair, ship hull washing, abrasive blasting and painting.	Activities at the dry docks include ship dismantling, ship repair, ship hull washing, abrasive blasting and painting.	From 1923 to 1927, the main navigational channel was relocated from the east side of Swan Island to the west side. Dredged materials were placed on Swan Island to raise its elevation and used to construct a causeway that connected the upstream end of the island to the east shore of the mainland. Between 1950 and 1962, the eight military-era shipways were abandoned in place by filling with dredged materials.
Shaver Transportation #2377	8.4	W	Current: general towing and lightering. Historical: mobile telephone service and marine transportation.	Overwater activities include a fleet of 11 tugboats and 16 barges, a main dock including ramp and 3-finger piers, 200-ft shop barge including ramp and fuel dispensers (unknown type and capacity), and a 200-ft floating shed.		From 1923 to 1927, the main navigational channel was relocated from the east side of Swan Island to the west side. Dredged materials were placed on Swan Island to raise its elevation and used to construct a causeway that connected the upstream end of the island to the east shore of the mainland. Between 1950 and 1962, the military-era shipways were abandoned in place by filling with dredged materials.
Kittridge Distribution Center - Schnitzer Investment Corp #2442	8.6	W	Current: storage, mixing, and distribution of oil-based inks; storage of trailer-mounted generators and large spools of cables and supplies for maintenance of telecommunication cables; newspaper machines, limited bearing cleaning with lube oil; distribution of household decorative tiles and tile installation supplies. Historical: activities above and acetylene production and lime recovery operations, scrap metal handling, and diesel truck refueling.	None - upland location		The small portion (~10%) of the site that is not paved is covered with imported clean landscape fill.
Lakeside Industries #2372	8.6	W	Current: asphalt manufacturing. Historical: asphalt manufacturing and moorage.	Dock added in 1948. Since 1995, raw aggregate is delivered to the site by tug and barge, and after being unloaded with a conveyor system, the aggregate is stockpiled along the edge of the river.		The fill predominantly consists of sand extending to approximately 10 feet bgs.
Christianson Oil #2426	8.7	E	Petroleum/lubricant storage, blending, and distribution.	None - upland location		None



Table 3.2-1. Historical Overwater Features and Fill Placement.

Site Name and ECSI Number	River Mile	River Bank	Major Industrial Operations <sup>a</sup>	Overwater Activities <sup>a,b,c</sup>		Fill <sup>a,c</sup>
				Historical	Current	
Gunderson LLC #1155	8.8	W	Current: Manufacturing rail cars and marine barges. Historical: rail car and marine vessel manufacturing, ship dismantling and auto salvage.	Dock was present 1936 and launchways in 1957. The application of marine primers and paints onto the marine barges is conducted on the launchways. This work is considered overwater activity. Completed railcars are temporarily staged on outfitting dock (gantry) for rework of welds, touch-up painting, and using a transit to make sure cars are level. Prior to the 1960s, the area offshore of Gunderson was used for mooring of log rafts.		Gunderson site adjacent to the Willamette River was raised above the river level beginning in the 1930s using dredged fill material. The man-made fills were placed over much of the site. Therefore, most of the sand and silt found in the subsurface of the Gunderson site are fill materials obtained from the dredging of the Willamette River channel. A gully onsite was filled in the 1970s, fill source unknown. Fill was also placed in 1957.
Equilon Property (Pipeline Containment) #2117	8.8	W	Current: storage/distribution of gasoline, diesel, and ethanol. Historical: Beginning in 1928, storage/distribution of petroleum, bunker fuel, jet fuel, and lubrication oil.	The Equilon facility includes a dock on the Willamette where petroleum products are transferred from vessels to an underground pipeline corridor that extends upgradient beneath the Gunderson property to the main bulk petroleum facility. The dock has existed since at least 1936.		The riverbank in the vicinity of the dock is composed of fill materials deposited there sometime after 1936. The fill is believed to be dredged sand material.
Trumbull Asphalt #1160	9.1	W	Asphalt and roofing manufacturing plant.	None - upland location		The industrial area surrounding the site is known as the Guilds Lake area because of a shallow lake that formerly occupied the area until it was filled to provide industrial land in the early 1900s. Fill consists of asphalt, crushed rock subgrade, silt and sand. Fill source unknown.
Van Waters and Rogers #330	9	W	Bulk chemical packaging, storage and distribution.	None - upland location		Between 1910 and 1930, the lake and surrounding area were filled with dredged sediment from the Willamette River and upland fill material.
Columbia Plating #29	9.1	E	Electroplating, plating, polishing, anodizing, and coloring (all after 1975).	None - upland location		None
City of Portland	9.5-10.0	E	NA	Kerr-Gifford grain dock removed in 1939 (based on 1935 Commission of Public Docks Industrial Map).	NA	Original shoreline formed cove. In 1969, area was filled (corresponding with filling of lagoon).
Goldendale Aluminum #2440	10	E	Current: storage of lubricating and hydraulic oils. Historical: alumina and electrode binder pitch unloading facility, grain shipment facility.	Two docks constructed in 1936. Activities began in 1957 and included ship refueling, alumina and pitch unloading. Prior to this time, the site was a grain shipment facility.		A small area in the northeast section of the site was filled beginning in 1969.
Port of Portland - Terminal 2 #2769	10	W	Current: marine terminal. Historical: marine terminal, shipyard-ship construction during WWII (unknown to 1949), exporter of agricultural and manufactured wood products.	Overwater activities associated with the historical sawmill and shipyard operations were performed in areas that were subsequently filled to create the current facility. Thus, none of these operations were conducted in areas that are currently within the Willamette River. A dock was removed from the site in 1966 and then in 1987 two docks were added. Activities at site included loading and unloading by SSA of break-bulk lumber, plywood, pulp, and products on vessels, railcars, trucks, including agricultural and manufactured wood products.	Infrequent loading and unloading by SSA of break-bulk lumber, plywood, pulp and products on vessels, railcars, and trucks.	The facility is built largely on filled riverbed. In 1927, fill was placed east of the old sawmill operations. In 1966, a dock was removed and the area filled. Backfilling occurred downstream of Terminal 2 in the late 1960s. Backfilling of the Terminal 2 upstream slip occurred by 1987. In 1981 the dredge berth was filled after it was relocated. Fill source not identified.
Sulzer Bingham Pumps #1235	10.3	W	Current: Equipment pump manufacturer. Historical: part of WISCO shipyard where conversion, maintenance, and repair of government ships was conducted. WISCO also constructed minesweepers, minelayers, escort vessels, and patrol vessels, and repaired various operating vessels.	Several large pieces of metal slag are located along the Willamette River bank, at and above the surface water level. Information regarding the lease of submerged lands and/or overwater structures was not found in Oregon DSL files. Historical: ship repair activities		By 1947 the site was filled with layers of sand and layers of silt and sand mixed with brick and wood debris up to 22.5 ft bgs.
UPRR Albina Rail Yard #178	10.4	E	Switching yard.	There were several former docks located along the shoreline between RM 10 and 11 originating from 1936 until approximately 1975. Two docks are still visible on 2005 aerial photo, see Goldendale Aluminum. There is no information regarding the types of activities associated with the former docks.		The Albina Rail Yard is situated over both hydraulic fill and fine-grained alluvium. The hydraulic fill may be 10 ft to 20 ft in thickness and most likely originated from sediments previously dredged from the river.

Table 3.2-1. Historical Overwater Features and Fill Placement.

Site Name and ECSI Number	River Mile	River Bank	Major Industrial Operations <sup>a</sup>	Overwater Activities <sup>a,b,c</sup>		Fill <sup>a,c</sup>
				Historical	Current	
Port of Portland-Terminal 1 North #3377	10.6	W	Current: lumber company operations (Emerson hardwood), combined sewer overflow shaft and tunneling operations (City of Portland). Historical: sawmill, planing mill, steam plant/drying kilns, and lumber storage yard, retail coal and wood dealer, edible oil refiners, finished wood products, retail fuel wood dealer and wholesale dried fruit.	In 1908, a coal and gravel dock was located along the river. In 1946, a single-berth dock was used as a lumber terminal. Loading and unloading of items such as lumber, logs, paper products, steel, containers, and bagged grain.	None, dock berth structures still present.	Filled submersible and submerged lands. Filling was occurring in 1957. Fill source not identified. The fill consists of sandy gravel, sand, silty sand with traces of clayey silt and wood debris.
Port of Portland - Terminal 1 South (Riverscape) #2642	10.9	W	Current: mixed commercial and residential. Historical: marine terminal, Emerson Hardwood dock, Willamette Iron and Steel dock. Prior to and during WWII, WISCO periodically used T1 South for temporary equipment storage.	Docks were constructed in the early 1900s. Activities included loading and unloading of items such as lumber, logs, paper products, steel, containers, and bagged grain. All overwater activities ceased in 1986 and most dock/pier structures have been removed.	None, some dock structures still remain.	Filled submersible and submerged lands in early 1900s. Fill source not identified. Albina Ferry Slip (Slip 1) created in 1914 and Slip 2 in 1923. Filling occurred at the downstream end of former Terminal 1 in 1922, upstream end in 1936, and the former Terminal 1, Slip No. 1, in the early 1970s.
Former Albina Engine and Machine Works Shipyard (and immediate surrounding areas) Tucker Building (#3036)	11 to 11.6	E	Current: cement handling (Glacier NW), grain storage and distribution (Cargill), misc. warehouses, fabrication shops, parking strips, garages, light industry. Historical: former shipyard and machine works, former electrical operations (Tucker Bldg, PP&L, Western Electric, and Westinghouse).	Albina Engine and Machine Works was founded in 1904 as a repair yard and included both riverfront and non-riverfront property. Overwater features consisted of 6 shipways and attendant dock structures. After ships were assembled in the Albina shipways, they were moored at the Albina dock for outfitting, which included installing interior mechanical and electrical features and deck painting. Incidental spills of paint residue and fuels into the slip were possible during this time. Bilge water (often containing oily residue) was likely discharged from the grain ships, as well as other ships that moored in this area in the early 1900s. Other historical riverfront activities included sand and gravel storage, asphalt manufacturing, general cargo handling, grain shipping, and cement manufacturing. Docks have been present in the area of the Glacier facility from 1936 to present day. Present-day docks at the Cargill facility were constructed sometime between 1957 and 1966. A large overwater structure called the Irvine Dock was present at this location prior to construction of the present-day Cargill dock. The dock appears to have been present since 1906 or earlier according to information obtained from the City of Portland.	Docks associated with Glacier NW and Cargill for loading and unloading. Glacier's dock has been in existence since 1936. Two additions to Cargill's docks occurred in 1966.	Infilling of the former shipways associated with the Albina shipyard began in the 1950s and was completed by 1963. The source of the fill material is unknown.
Albers Mill	11.6	W	Current: commercial office building and pay parking lot. Historical: grain and cereal mill.	At least as far back as 1889, the site was occupied by docks and grain storage warehouses that were constructed on pilings.	None	The warehousing was demolished in 1965-1966. Addition of 5-30 ft of fill to the northwest end of the site was begun in 1966. The fill may have included concrete-steel bow sections of scrapped Liberty ships. Aerial photographs indicate that additional fill may have been placed along the river and northwest property line sometime after 1980.

Notes:

- <sup>a</sup> Information obtained from CSM site summaries (2005) and site summary addenda (2006).  
<sup>b</sup> Known or documented spills at the sites were obtained from DEQ ERIS database for the period of 1995 to 2008.  
<sup>c</sup> Additional information obtained from Maps 3.1-14a-f.

AST - aboveground storage tank	EOSM - Evraz Oregon Steel Mills	PG&C - Portland Gas & Coke
BES - City of Portland Bureau of Environmental Services	ERIS - Emergency Response Information System	PGE - Portland General Electric
bgs - below ground surface	KMLT - Kinder Morgan Linnton Terminal	POP - Port of Portland
CRSG - Columbia River Sand and Gravel	LNG - liquified natural gas	SSA - Stevedore Services of America
CSM - conceptual site model	MGP - manufactured gas plant	SSI - Schnitzer Steel Industries
DEQ - Oregon Department of Environmental Quality	MSL - mean sea level	UPRR - Union Pacific Rail Road
DSL - Oregon Division of State Lands	NA - not applicable	USCG - U.S. Coast Guard
ECSI - Oregon Environmental Cleanup Site Inventory	PEO - Premier Edible Oils	WISCO - Willamette Iron and Steel Company

Table 3.2-2. Property Name Index (RM 1.9 - 11.8).

Property Owner (as shown in Map 3.2-1a-e)	River Mile	Other Site Names
ACF Industries, Inc.	3.8	
ADM Milling Co.	11.4	
Advanced American Construction	5.8	Marine Finance Corporation (see Hendren Tow Boats)
Albers Mill Property	11.6	
Alder Creek Lumber Co., Inc	2.8	
Anchor Park LLC	9	
Anderson Bros, Inc.	7.8	
ANRFS Holdings Inc.	9.2	
Apollo Dev., Inc.	11	former Terminal 1 South
Arkema Inc.	7.4	Atofina, Atochem North America, Elf Atochem
Armstrong Disposal Company	8.6	
Ash Grove Cement Co.	2.8	
Ash Grove Cement Co.	10	former Goldendale Aluminum
ATC Leasing Co.	8.8	
Automatic Vending	9.2	
Babcock Land Co. LLC	4.4	
Benson Industries	11.2	
Becker Land LLC	8.8	former Port of Portland
Betty Campbell Building	10.6	
Blue Lagoon - Terminal 5	2	
BNSF Railway Co.	6.8	
BP West Coast Products LLC	4.8	ARCO, BP Bulk Terminal 22T
Brazil & Co.	8.4	
Brix De Armond LLC	5.6	
Brix Maritime Co.	5.4	Foss Maritime Company
Cargill Corp/CLD Pacific Grain	11.5	
Carson Oil - NW 35th AVE	9.2	
Chevron USA, Inc.	7.6	
City of Portland	5.8, 6, 7, 9.2, 9.9, 10.6	BES WPCL (RM 6), former Terminal 1 North (RM 10.6)
Columbia River Sand & Gravel Inc.	4.6	
ConocoPhillips Co.	7.8	Tosco
Consolidated Freightways Inc.	10.8	
Consolidated Metco, Inc.	3	Metco, Inc.
Container Recovery	9	
Cornerstone Property	8.8	McWhorter, Inc., Eastman Chemical, McCloskey Corporation
Crosby & Overton	9	
Dasic International Corp.	10.2	
Dolan and Co. LLC	10.4	see Sulzer Pumps
Drew Paints, Inc.	10.8	
Dura Industries	8.4	
Equilon Enterprises LLC	8.8	Shell Oil Products US, Texaco Refining/Marketing, Inc. (see Texaco Product Pipeline)
ESCO Landfill - Sauvie Island	Multnomah Channel	
ESCO Corp. - Willbridge Landfill	7	
ESCO Plant #3	10.4	
Evrax Oregon Steel Mills	2.4	Oregon Steel Mills, Inc.
ExxonMobil Oil Corp.	5	Mobil Oil Corporation, Shore Terminals LLC, ST Services (see Shore Terminals LLC)
Flowers by Victor	10.6	
Fred Meyer - Swan Island	9	
Freightliner Corp.	8.2, 9	Freighliner TMP (North), Freighliner TMP II (South)
Frevach Land Co.	3	
Front Ave. LP (LSD CMI NW)	8.2	CMI Northwest
Front Ave. LP (LSD Tube Frdgs.)	8	Tube Forgings

Table 3.2-2. Property Name Index (RM 1.9 - 11.8).

Property Owner (as shown in Map 3.2-1a-c)	River Mile	Other Site Names
Front Ave. LP (LSD Glacier NW)	8	Glacier Northwest, Lone Star Northwest
Front Avenue MP	9.8	
Galvanizers Co.	9.6	
General Electric Co.	9.6	General Electric Decommissioning Facility
Genstar Roofing Co., Inc.	7.6	CertainTeed Corporation, GS Roofing Products
GI Trucking	9	
Glacier NW	11.3	
Guilds Lake	10	
Gunderson LLP	9	
GWC Properties LLC	7.8	Great Western Chemical Corporation, Quadra Chemicals Western, Brenntag Pacific
HAI Inc.	8.8	Christenson Oil
Hendren Tow Boats	5.6	
Henry Wong	10.4	
Hercules Inc.	9.6	
Herman, Stan	11	
Hill Investment Co.	9.2	
Industrial Battery Building	10.8	
Irvjoy 3rd Generation Corp.	9.4	
Island Holdings Inc.	9	
Jacobson & Co. Inc.	11.1	
J R Simplot Company	2.6	
Kesef Development LLC et. al.	8.4	Calbag Metals - Front Ave.
Kinder Morgan	4.2	Kinder Morgan Liquids Terminal - Linnton Petroleum Terminal, GATX Terminals Corporation
Kinder Morgan (Willbridge)	7.6	Willbridge Terminal (Kinder Morgan Liquids Terminal), GATX Terminals
King-Ries Property	10	
Kittridge Distribution Center	8.4	
Koppers Industries Inc.	6.4	
Lakea Corp.	9.2	former Columbia American Plating
Lakeside Industries	8.4	
Lampros Properties LLC	4	Ryerson Steel
Langley-St. Johns Partnership	5.6	MarCom Shipyard, MarCom Holdings
Linnton Oil Fire Training Grounds	3.4	
Linnton Plywood Assn.	4.6	Linnton Plywood, Columbia Sand & Gravel
Longview City Laundry & Cleaners	9.8	
Magnus Co.	9	
McCall Oil Real Estate	8	McCall Oil Real Estate Company LLC
McCormick & Baxter Creosoting Co.	7.2	
McCormick Pier Properties	11.8	
Metco, Inc.	2.8	Consolidated Metco, Inc.
Metro	6.6	Willamette Cove - West, Central, and East Parcels
Metro Central Transfer Station	7.2	
Mill Hot	11.1	
Millican Properties LLC	3.8	Portland Container
Mogul Corp.	9.6	
Knife River Corp.	3.6	Morse Bros. Inc., Georgia-Pacific, Inc. - Linnton Fiber Terminal
Mt Hood Chemical Corp.	8.5	
Mt. Hood Chemical Property	8.4	
Multnomah County - St. Johns Site	5.8	
Nikko Materials USA, Inc.	7.2	Gould Electronics, Inc., NL Industries
Northwest Natural Gas Co.	6.4	Gasco
Northwest Pipe Co.	4	
Nudelman & Son Inc.	9.8	
Nurnberg Scientific Co.	11.2	

Table 3.2-2. Property Name Index (RM 1.9 - 11.8).

Property Owner (as shown in Map 3.2-1a-e)	River Mile	Other Site Names
ODOT - Surplus Property	10.6	
Olympic Pipe Line Portland Delivery Facility	5	
Olympic Pipeline Company	4.2	
Oregon Washington Railroad & Navigation Co. (UPRR Albina Yard)	10	United Pacific Railroad (UPRR) - Albina Yard
Owens-Corning Fiberglas Corp.	3.8	
Owens-Corning Fiberglas Corp.	9	Trumball Asphalt Plant
Paramount of Oregon, Inc.	7.8	Chevron USA Asphalt Refinery
Pacific Power & Light - Mason Substation	10.4	
PacificCorp Albina Riverlots	11.3	
Paco Pumps	9.6	
Port of Portland (P.O.P.)	10, 4.2-5.5, 1-2	Terminal 2, Terminal 4, Terminal 5
P.O.P. (leased)	1-9.8	Lessees are located at Terminal 5, South Rivergate, Terminal 4, Willbridge Terminal, Swan Island
P.O.P. (leased) (Willbridge)	7.6	Willbridge Terminal (Chevron - North, ConocoPhillips Company - South)
PGE - Forest Park Property	8.4	
PGE Station E	10.4	
Portland General Electric Co.	3.2	
Portland Shipyard LLC	8.4	Cascade General Ship Repair Yard, Vigor Industrial
Portland Terminal RR Co.(Guilds Lake Yard)	8.8	Burlington Northern Santa Fe (BNSF) Railroad, Portland Terminal
R K Storage & Warehousing, Inc.	4.4	RK Storage
R L R Investments LLC	3.8	Romar Transportation Company
Ralston, Tim (Ralston, TR)	10.8-11	Timothy R Ralston (former Terminal 1 South)
Riverscape LLC	10.8	former Terminal 1 South
Roadway Express	8.8	
RoMar Realty of OR Inc.	3.6	
Sakrete of Pacific Northwest	11	
Sause Bros., Inc.	9.6	
Schmitt Forge	10	
Schnitzer Investment Corp.	7.2	Schnitzer Doane Lake - Air Liquide
Schnitzer Investment Corp.	3.6	Burgard lessees: former Premier Edible Oils, Boydstun Metal Works, Western Machine Works, Morgan
Schnitzer Steel Industries, Inc.	4	International Terminals, Burgard lessees: Portland Blast Media, Cal Bag Metals, Northwest Pipe (storage)
Shaver Transportation Co.	8.4	
Shore Terminals LLC	5.4	ExxonMobil Oil Company, ST Services (See ExxonMobil), Nustar, Valero
Siltronic Corp.	6.6	Wacker Siltronic Corporation
Smurfit-Stone Container	3.8	Jefferson Smurfit
Southern Pacific Pipe Lines	7	
Starlink Logistics, Inc.	7.6	Rhone-Poulenc, Bayer CropScience, Aventis CropScience, Chipman Chemical
States Battery Co.	10.4	
Columbia River Forge & Machine	6.2	Crawford Street Corporation, Steel Hammer Properties LLC
Steelmill Warehouse LLC	2.6	Union Chemical Division of Union Oil Company and H.B. Fuller Company
Sulzer Pumps (US), Inc.	10.4	Sulzer Bingham Pumps
Sunny's Dry Cleaners - Portland	10	
Tanker Basin LLC	8	McCall Oil & Chemical Corporation
Texaco Product Pipeline	8.8	
TFA Inc.	10.9	
The Marine Salvage Consortium	8.4	Fred Devine Diving and Salvage, Inc.
TOC Holdings	3.4	Time Oil NW Terminal, Bell Oil Terminal, Koppers Company/Beazer East

Table 3.2-2. Property Name Index (RM 1.9 - 11.8).

Property Owner (as shown in Map 3.2-1a-c)	River Mile	Other Site Names
Transloader International	5.6	
Triangle Park LLC	7.4	Reidel, Zidell Triangle Park
United States of America, Moorings	6	U.S. Moorings, US Army Corps of Engineers (adjacent to Northwest Natural)
US Coast Guard	8.2	US Coast Guard Marine Safety Office/Group Portland (Swan Island Lagoon)
U.S. Navy Reserve Center	7.6	
University of Portland	7.8	
UPRR - St. Johns Tank Farm	4.6	
UPRR Albina Yard	10	
V&K Service	7.6	
Van Waters & Rogers, Inc.	9	Univar Corporation, Vopak USA, Inc.
Walters, Douglas J.	3.4	
Westlink Packaging	11.2	
Willbridge Switching Yard	7.9	
Willamette River Westside CSO Construction	10.6	
Williams, Cindy	9.6	
Windsor-Allen LLC	7.8	
Wirfs, Don	9.2	Chase Bag, Chase Packaging Corp., Schnitzer Investment Company - NW Yeon
Zehrunge Corp. (Former)	10.8	
Zidell, Emery	8, 8.6	

Table 3.2-3. Status of Combined Sewer Overflow Systems Control within Study Area.

Outfall Number	Pipe Size	Location	River Mile	Construction Date	Interceptor Diversion Date	Control Date <sup>a</sup>	Future CSO Potential	Notes	Status of Outfall
<b>Outfalls Controlled Before the City's 20-Year Abatement Program</b>									
OF-42	10-inch	East Side	11.7	~1910	1954	1954	No	Combined basin served residential properties	Previously combined, stormwater-only outfall since 1954
OF-44	72-inch	East Side	11.2	<1907	1954	1954	No	Combined basin served industrial properties	Previously combined, stormwater-only outfall since 1954
OF-51	18-inch	East Side	5.8	1906 <sup>b</sup>	1952	NA	No	Drainage basin was diverted to OF-52 and the outfall was abandoned in mid-1970s. Industrial area closer to the river separated in 1952. From 1952 to mid-1970s, only residential area included in the CSO basin	Previously CSO, abandoned in mid-1970s
OF-16	36-inch	West Side	9.7	1930	1970	1970	No	Designated as combined system in industrial area but uncertain if any sanitary or wastewater discharged to combined system	Previously combined, stormwater-only outfall from 1930 to 1948 and from 1970 to current
OF-18	72-inch	West Side	8.8	<1945 <sup>b</sup>	1970	1970	No	Combined area served industrial and open space. According to Stevens & Thompson (1964), many sewers were constructed by private parties and sewer connections were unknown.	Previously combined, stormwater-only outfall since 1970
OF-19/20	42-inch	West Side	8.4	1944 <sup>b</sup>	1970	1970	No	Combined area served industrial and open space. According to Stevens & Thompson (1964), many sewers were constructed by private parties and sewer connections were unknown.	Previously combined, stormwater-only outfall since 1970. OF-20 flows redirected to OF-19 in 1949.
OF-22/21	60-inch	West Side	7.8	<1928 <sup>b</sup>	1970	1970	No	OF22 combined area served industrial and open space. According to Stevens & Thompson (1964), many sewers were constructed by private parties and sewer connections were unknown. OF21 served only one site, an asphalt plant.	Previously combined, stormwater-only outfall since 1970. Flow from OF-21 redirected to OF-22 in 1969.
OF-45	27-inch	East Side	11	1907	1954	1974	No	Industrial area closer to the river separated in 1954. From 1954 to 1974, only residential area included in the CSO basin	Previously CSO, stormwater-only outfall since 1974
<b>Outfalls Controlled as Part of the City's 20-Year Abatement Program</b>									
OF-14	30-inch	West Side	10.8	1905	1953	<1986	No	Combined basin served industrial properties	Previously CSO, stormwater-only outfall since before 1986
OF-23	27-inch	West Side	5.2	<1915 <sup>b</sup>	1972	1992	No	Combined area served primarily residential with some commercial and industrial. Combined flow diverted to local treatment plant in 1945 for primary treatment (solids removal). Controlled by sealing off diversion structure in 1992.	Previously CSO, currently abandoned
OF-52	30-inch	East Side	5.7	1920	1952	1995	Yes	Combined area served residential area. Controlled via Expanded Separation and Downspout Disconnection. Monitoring to confirm compliance of 3-year summer/4-per-winter storms by Dec. 2011.	Controlled CSO, with separated stormwater downstream of diversion

Table 3.2-3. Status of Combined Sewer Overflow Systems Control within Study Area.

Outfall Number	Pipe Size	Location	River Mile	Construction Date	Interceptor Diversion Date	Control Date <sup>a</sup>	Future CSO Potential	Notes	Status of Outfall
OF-50	30-inch	East Side	5.9	1906	1952	1995	No	In 1954, industrial area closer to the river separated; remaining CSO basin served predominately residential areas. Controlled via Expanded Separation and Downspout Disconnection. System converted to stormwater-only in 1995.	Previously CSO, now stormwater only
OF-49	15-inch	East Side	6.5	1945	1952	1995	No	Combined basin drained predominately residential areas and no industrial properties. Controlled via Expanded Separation and Downspout Disconnection. Diversion sealed as of Dec. 2001.	Previously CSO, now stormwater only with end-of-pipe treatment
OF-53	48-inch	East Side	5.2	<1916	1952	1995	Yes	Combined area served residential area. Controlled via Expanded Separation and Downspout Disconnection to 3-year summer/4-per-winter storms.	Controlled CSO, with separated stormwater downstream of diversion
OF-48	30-inch	East Side	7.3	1948	1952	1996	No	Combined basin drained predominately residential areas and no industrial properties. Controlled via Expanded Separation and Downspout Disconnection. Diversion sealed as of Dec. 2001.	Previously CSO, now stormwater only with end-of-pipe treatment
OF-24	12-inch	West Side	4.3	<1915 <sup>b</sup>	1973	2000	SSO Only	Combined area served primarily residential with some commercial and industrial. Combined flow diverted to local treatment plant in 1945 for primary treatment (solids removal). Controlled via Partial Separation & Pump Station Improvements to 3-year summer/4-per-winter storms.	Previously CSO, now emergency pump station relief point only. Only discharges to river if there is a pump station failure.
OF-47	48-inch	East Side	9.9	1910	1954	2006	Yes	Combined basin is primarily residential with some commercial. Controlled by 3-year summer/4-per-winter storms via West Side CSO Facilities.	Controlled CSO, with separated stormwater downstream of diversion
OF-13	24-inch	West Side	11.1	1890	1953	2006	No	Combined area served primarily industrial land. Controlled via West Side CSO Facilities. Diversions sealed.	Previously CSO, now stormwater only
OF-12/12A	16-inch/48-inch	West Side	11.2	1888	1953	2006	No	Combined area served primarily industrial land. Controlled via West Side CSO Facilities. Diversions sealed. OF12A not a City outfall.	Previously CSO, now stormwater only
OF-11	78-inch	West Side	11.4	1888	1953	2006	No	Combined area served mixed land uses (open space, industrial, residential and commercial). Controlled via West Side CSO Facilities, Stream Separation. CSO pipe to outfall sealed in 2006.	Previously CSO, now stormwater only
OF-15	102-inch	West Side	10.4	1899	1953	2006	Yes	Combined based served open space, residential, industrial and commercial. A portion of the industrial area was separated in 1975. Controlled via West Side CSO Facilities to 3-year summer/4-per-winter storms (CSO outfall only).	Controlled CSO, with separated stormwater downstream of diversion



Table 3.2-3. Status of Combined Sewer Overflow Systems Control within Study Area.

Outfall Number	Pipe Size	Location	River Mile	Construction Date	Interceptor Diversion Date	Control Date <sup>a</sup>	Future CSO Potential	Notes	Status of Outfall
OF-46	80-inch	East Side	10.5	1901	1954	2011	Yes	Combined basin is primarily residential with some commercial. Controlled via Cornerstone and Eastside CSO facilities to 3-year summer/4-per-winter storms.	Controlled CSO
OF-44A	72-inch	East Side	11.2	1974	1974	2011	No	Combined basin is primarily residential with some commercial. Controlled via Eastside CSO facility.	Sealed, no CSO
OF-43	56-inch	East Side	11.4	1906	1954	2011	Yes	Industrial area closer to the river separated in 1954. Primarily residential area remained CSO basin Controlled via the Cornerstone and Eastside CSO facilities to 3-year summer/4-per-winter storms.	Controlled CSO
OF-17	90-inch	West Side	9.8	1921	1953	2011	Yes	Combined area served mixed land uses (open space, industrial and residential). About half of the industrial area was separated in 1950s-1970s. Controlled via the Balch Consolidation Conduit and West Side CSO Facilities to 10-year summer/emergency storms.	Controlled CSO

**Sources:**  
Long-Term Solids and Floatables Control Plan (City of Portland 2008b) and Demonstration of AFSO Compliance Final Report (City of Portland 2012).

**Notes:**  
CSOs listed in order of year controlled.  
<sup>a</sup> Separate sanitary and stormwater constructed and all wastewaters required to connect to City sanitary system.  
<sup>b</sup> Outfall not originally constructed by the City.  
  
CSO - combined sewer overflow  
OF - outfall  
SSO - sanitary sewer overflow

Table 3.2-4. City Outfall Status 1977.<sup>a,b</sup>

<b>Outfall(s) ID</b>	<b>Diverted Area<sup>c</sup> (Acres)</b>	<b>Combined (Acres)</b>	<b>Sanitary-Only (Acres)</b>	<b>Storm-Only (Acres)</b>
OF1, OF1B, OF2	1424	220	1175	29
OF3	1007	977	--	30
OF4	6	6	--	--
OF5	39	39	--	--
OF6	285	285	--	--
OF7	696	696	--	--
OF8A	39	39	--	--
OF8	101	2	100	36
OF9	389	389	--	--
OF11	1500	1500	--	--
OF12	46	46	--	--
OF13	33	33	--	--
OF15	1335	1320	15	--
OF17	423	293	70	60
OF23	43	43	--	--
OF24	78	78	--	--
OF26A	45	45	--	--
OF26	28	28	--	--
OF27	3107	2317	790	--
OF28	1820	1820	--	--
OF29	12	12	--	--
OF30	3934	3934	--	--
OF31	61	61	--	--
OF32	26	26	--	--
OF33	30	30	--	--
OF34	10	10	--	--
OF35	14	14	--	--
OF36	900	894	6	--
OF37	2589	2589	--	--
OF38	298	298	--	--
OF40	1905	1905	--	--
OF41	280	271	--	9
OF43	1076	1076	--	--
OF44A	159	81	78	--
OF46	670	658	--	12
OF47	297	297	--	--
OF48	102	102	--	--
OF49	46	46	--	--
OF50	35	35	--	--
OF52	33	33	--	--
OF53	94	94	--	--

**Notes:**

<sup>a</sup> CRAG 1977

<sup>b</sup> 1977 is significant because it is the year the Columbia River Association of Governments (CRAG) undertook a study of the greater Portland area to evaluate municipal and industrial wastewater and urban stormwater, including the quality of the overflows from the City of Portland combined sewer overflow (CSO) system. The study provided a baseline for reevaluating Portland's CSO system and provided a status of the outfalls that were current at that time.

<sup>c</sup> Diverted Area is the total area of the diversion basins within each combined sewer basin.

Table 3.2-5. Average Annual Pollutant Loads Resulting from CSOs in 1975.<sup>a</sup>

Outfall(s) ID	River Mile	Suspended Solids	Suspended Solids
		(10 <sup>3</sup> lb)	(mg/L)
OF12-15	10.5	87	33.5
OF43	11.4	233.9	70.4
OF11	11.4	70.2	24.5
OF40	12.2	464.6	81.5
OF8-10	12.5	0.4	74.5
OF37	12.6	355.6	60.9
OF38	12.6	354.4	116.2
OF36	12.7	97.1	55.6
OF5-7	13.6, 14.0	30.7	31.2
OF30	14	446.8	70.5
OF30	14	216.3	60.3
OF28	15.3	180.1	57.0
OF3, OF4	15.5	46.5	30.2
OF1, OF1A, OF2	15.8	14.1	52.0
OF27	16.8	416.9	72.0

**Notes:**

<sup>a</sup> CRAG 1977

CSO - combined sewer overflow

Table 3.2-6. LWR Dredging Projects in and Adjacent to the Study Area (1997-2010).

Description	Fiscal Year Dredged	Dredge Location			Purpose	Quantity (cubic yards)
		River Mile or Channel Station Positioning	Terminal	Berth		
FY 97 Corps by Great Lakes #53 Clam	1997	8.5 to 10	--	--	Maintenance	346,000
POP Willamette River Dredging	1997	4.5	4	410, 411	Maintenance	5,454
Goldendale Aluminum (former)	2000 <sup>a</sup>	10 to 10.1	--	Goldendale Dock	Maintenance	unknown
POP Willamette River Dredging	2001	1	5	503	Maintenance	1,750
POP Willamette River Dredging	2001	1 to 1.5	5	501, 503, Barge Slip	Maintenance	3,435
Chevron Products Company	2001	7.5 to 7.8	Willbridge	Chevron Dock	Maintenance	15,000
Cargill, Incorporated	2001	11.6	Irving Elevator	Irving Elevator	Maintenance	5,556
POP Willamette River Dredging	2002	10	2	204 - 206	Maintenance	8,330
POP Willamette River Dredging	2002	4.5	4	410, 411	Maintenance	2,250
POP Willamette River Dredging	2003	4.5	4	410, 411	Maintenance	500
POP Willamette River Dredging	2004	4.5	4	410, 411	Maintenance	750
Schnitzer Steel Industries	2004	3.8 to 4	International Terminals	1, 2, 3, 4, 5	Maintenance	138,000
City of Portland Fire Bureau Station 6 Dock	2005	9.7	--	Fire Boat Dock	Maintenance	4,130
POP Willamette River Dredging	2005	4.5	4	410, 411	Maintenance	4,329
POP Willamette River Grading	2005	1 to 1.5	5	501, 503	Maintenance	282
NW Natural (Gasco)	2005	6.5	--	--	Remediation	15,300
<i>Evrax Oregon Steel Mills</i>	<i>pending</i>	<i>1.9 to 2.5</i>	--	--	<i>Remediation</i>	<i>29,000</i>
<i>Vigor Industrial, Inc.</i>	<i>NA</i>	<i>8.2</i>	<i>Portland Shipyard</i>	<i>Pier C</i>	<i>Maintenance</i>	<i>1,100</i>
CLD Pacific Grain, Inc.	2009	11.6	Irving Elevator	Grain O Dock	Maintenance	1,430
CLD Pacific Grain, Inc.	2009	11.8	Irving Elevator	--	Maintenance	
<i>Glacier Northwest</i>	<i>2004</i>	<i>11.3</i>	<i>Portland Cement Terminal</i>	<i>Main Dock &amp; Barge Dock</i>	<i>Maintenance</i>	<i>3,000</i>
<i>Ash Grove Cement</i>	<i>NA</i>	<i>10</i>	--	--	<i>Maintenance</i>	<i>22,400</i>
<i>Ash Grove Cement</i>	<i>2005</i>	<i>2.9</i>	<i>Rivergate Lime Plant</i>	--	<i>Maintenance</i>	<i>2,000</i>
<i>Waverly Marina Association</i>	<i>pending</i>	<i>17</i>	<i>Waverly Marina</i>	--	<i>Maintenance</i>	<i>105,838</i>
Gunderson, Inc.	pending	8.9	--	--	Maintenance	10,000
BP West Coast Products LLC	2008	4.9	22T	--	Remediation	13,293
POP Willamette River Dredging	2008	10	2	205, 206	Maintenance	12,242
POP Willamette River Dredging	2008	1	5	501, 503	Maintenance	1,997
POP Willamette River Dredging	2008	4.5	4	Slip 3, 410, 411	Remediation	12,800
POP Willamette River Dredging	planned for 2011	4.5	4	Slip 3, 410, 411, Wheeler Bay	Remediation	unknown
POP Willamette River Dredging	2010	1 to 1.5	5	501	Maintenance	12,246
POP Willamette River Dredging	2010	1 to 1.5	5	503	Maintenance	11,712
USACE Post Office Bar	planned for 2011		2	--	Maintenance	unknown

Table 3.2-6. LWR Dredging Projects in and Adjacent to the Study Area (1997-2010).

<b>Description</b>	<b>Fiscal Year Dredged</b>	<b>Dredge Location</b>			<b>Purpose</b>	<b>Quantity (cubic yards)</b>
		<b>River Mile or Channel Station Positioning</b>	<b>Terminal</b>	<b>Berth</b>		
ConocoPhillips	planned for 2011	7.5 to 7.8	Willbridge	ConocoPhillips Dock	Maintenance	NA
Chevron Products Company	planned for 2011	7.5 to 7.8	Willbridge	Chevron Dock	Maintenance	~20,000

**Notes:**

Italicized projects were obtained from USACE Public Notices.

<sup>a</sup> Permit authorized dredging of up to 1,500 cubic yards of material annually between September 8, 1999 to August 31, 2004.

FY - fiscal year

LWR - lower Willamette River

POP - Port of Portland

USACE - U.S. Army Corps of Engineers